RF TEST REPORT

For

HUIZHOU FORYOU OPTOELECTRONICS TECHNOLOGY CO., LTD.

Product Name: Photovoltaic energy storage DC integrated machine

Test Model(s).: DA802

Report Reference No.	:	**DACE240718006RL004**
Applicant's Name	:	HUIZHOU FORYOU OPTOELECTRONICS TECHNOLOGY CO., LTD.
Address	:	Building No.6, Foryou Industrial Park Area B,No.1 North Shangxia Road,Dongjiang High-tech Industry Park, Huizhou, Guangdong,China.
Testing Laboratory	:	Shenzhen DACE Testing Technology Co., Ltd.
Address	:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Connunity, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**ETSI EN 301 893 V2.1.1 (2017-05)**
Date of Receipt	:	July 18, 2024
Date of Test	:	July 18, 2024 to July 29, 2024
Data of Issue	:	July 29, 2024
Result	:	**Pass**

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE240718006RL004	July 29, 2024

NOTE1:

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EU Directives.

NOTE2:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:	Supervised by:	Approved by:
Ben Tang / Test Engineer	Stone Yin / Project Engineer	Tom Chen / Manager

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

ETSI EN 301 893 V2.1.1 (2017-05): 5 GHz RLAN; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Nominal Centre frequencies	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.2.2.1.2	Clause 4.2.1	Pass
Nominal Channel Bandwidth and Occupied Channel Bandwidth	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.3.2.1	Clause 4.2.2	Pass
RF output power, Transmit Power Control (TPC)	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.4.2.1.1.4 Clause 5.4.4.2.1.2.4	Clause 4.2.3	Pass
Power Density	ETSI EN 301 893 V2.1.1 (2017-05)		Clause 4.2.3	Pass
Transmitter unwanted emissions within the 5 GHz RLAN bands	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.6.2.1.2	Clause 4.2.4.2	Pass
Transmitter unwanted emissions outside the 5 GHz RLAN bands, conducted	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.5.2.1	Clause 4.2.4.1	Pass
Receiver spurious emissions, conducted	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.7.2.1	Clause 4.2.5	Pass
Adaptivity (Channel Access Mechanism)	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.9.3.2	Clause 4.2.7.3.2 Clause 4.2.7.3.3	Pass
Receiver Blocking	ETSI EN 301 893 V2.1.1 (2017-05)	Clause 5.4.10.2.1	Clause 4.2.8	Pass
User Access Restrictions	ETSI EN 301 893 V2.1.1 (2017-05)		Clause 4.2.9.2	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name	:	HUIZHOU FORYOU OPTOELECTRONICS TECHNOLOGY CO., LTD.
Address	:	Building No.6, Foryou Industrial Park Area B,No.1 North Shangxia Road,Dongjiang High-tech Industry Park, Huizhou, Guangdong,China.
Manufacturer	:	HUIZHOU FORYOU OPTOELECTRONICS TECHNOLOGY CO., LTD.
Address	:	Building No.6, Foryou Industrial Park Area B,No.1 North Shangxia Road,Dongjiang High-tech Industry Park, Huizhou, Guangdong,China.

2.2 Description of Device (EUT)

Product Name:	Photovoltaic energy storage DC integrated machine
Model/Type reference:	DA802
Series Model:	N/A
Trade Mark:	ADAYO
Power Supply:	DC60V14*2A
Operation Frequency:	**Band 1:** 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5180MHz to 5240MHz; 802.11n(HT40)/ac(VHT40)/ax(HE40): 5190MHz to 5230MHz; 802.11ac(VHT80)/ax(HE80): 5210MHz;
Number of Channels:	**Band 1:** 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 4; 802.11n(HT40)/ac(VHT40)/ax(HE40): 2; 802.11ac(VHT80)/ax(HE80): 1;
Modulation Type:	802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM);
Antenna Type:	Internal
Antenna Gain:	0dBi
Hardware Version:	V1.0
Software Version:	V1.0

2.3 Description of Test Modes

No	Title	Description
TM1	802.11a mode	Keep the EUT in continuously transmitting at 802.11a mode.
TM2	802.11n(HT20) mode	Keep the EUT in continuously transmitting at 802.11n(HT20) mode.
TM3	802.11n(HT40) mode	Keep the EUT in continuously transmitting at 802.11n(HT40) mode.
TM4	802.11ac(VHT20) mode	Keep the EUT in continuously transmitting at 802.11ac(VHT20) mode.
TM5	802.11ac(VHT40) mode	Keep the EUT in continuously transmitting at 802.11ac(VHT40) mode.
TM6	802.11ac(VHT80) mode	Keep the EUT in continuously transmitting at 802.11ac(VHT80)

		mode.
TM7	Receiving mode (20MHz)	Keep the EUT in receiving mode with 20MHz bandwidth.
TM8	Receiving mode (40MHz)	Keep the EUT in receiving mode with 40MHz bandwidth.
TM9	Receiving mode (80MHz)	Keep the EUT in receiving mode with 80MHz bandwidth.
TM10	Normal mode	Keep the EUT in normal communication with pairing device mode.

2.4 Description of Support Units

The EUT was tested as an independent device.

2.5 Equipments Used During The Test

RF output power, Transmit Power Control (TPC) **Transmitter unwanted emissions outside the 5 GHz RLAN bands, conducted** **Nominal Channel Bandwidth and Occupied Channel Bandwidth** **Power Density** **Transmitter unwanted emissions within the 5 GHz RLAN bands** **Receiver spurious emissions, conducted** **Adaptivity (Channel Access Mechanism)** **Receiver Blocking** **Nominal Centre frequencies**					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RF Test Software	TACHOY	RTS-01	V2.0.0.0	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Vector signal generator	Keysight	N5181A	MY48180415	2023-11-09	2024-11-08
Signal generator	Keysight	N5182A	MY50143455	2023-11-09	2024-11-08
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

2.6 Statement Of The Measurement Uncertainty

Test Item	**Measurement Uncertainty**
Radio Frequency	$\pm 2\times10^{-7}$
Occupied Bandwidth	±3.63%
RF conducted power	±0.733dB
RF power density	±0.234%
Conducted Spurious emissions	±1.98dB
Duty cycle	±3.1%
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3 Evaluation Results (Evaluation)

3.1 User Access Restrictions

Test Requirement:	The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements in clause 4.2.6. The above requirement includes the prevention of indirect access to any setting that impacts DFS. The following is a non-exhaustive list of examples of such indirect access. EXAMPLE 1: The equipment should not allow the user to change the country of operation and/or the operating frequency band if that results in the equipment no longer being compliant with the DFS requirements. EXAMPLE 2: The equipment should not accept software and/or firmware which results in the equipment no longer being compliant with the DFS requirements, e.g.: § software and/or firmware provided by the manufacturer but intended for other regulatory regimes; § modified software and/or firmware where the software and/or firmware is available as open source code; § previous versions of the software and/or firmware (downgrade).
Test Limit:	The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements in clause 4.2.6. The above requirement includes the prevention of indirect access to any setting that impacts DFS. The following is a non-exhaustive list of examples of such indirect access. EXAMPLE 1: The equipment should not allow the user to change the country of operation and/or the operating frequency band if that results in the equipment no longer being compliant with the DFS requirements. EXAMPLE 2: The equipment should not accept software and/or firmware which results in the equipment no longer being compliant with the DFS requirements, e.g.: § software and/or firmware provided by the manufacturer but intended for other regulatory regimes; § modified software and/or firmware where the software and/or firmware is available as open source code; § previous versions of the software and/or firmware (downgrade).

4 Radio Spectrum Matter Test Results (RF)

4.1 Nominal Centre frequencies

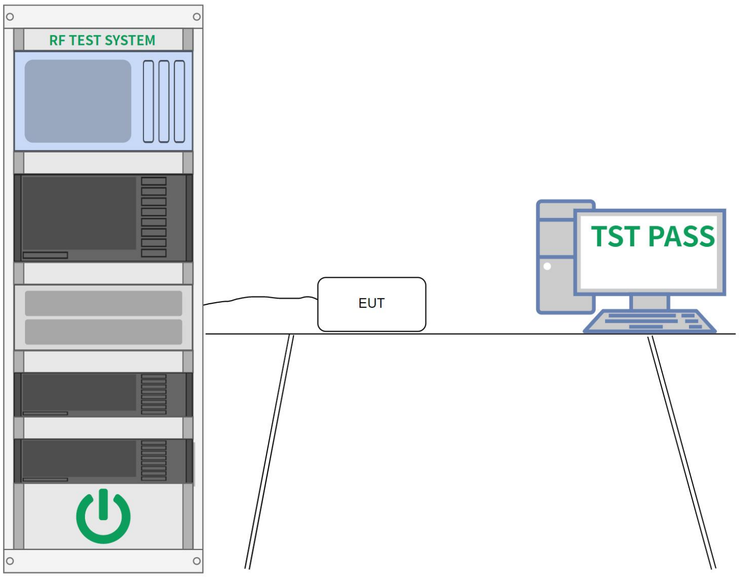
Test Requirement:	Clause 4.2.1
Test Limit:	The *Nominal Centre Frequencies* (fc) for a *Nominal Channel Bandwidth* of 20 MHz are defined by equation (1). See also figure 3. fc = 5 160 + (g × 20) MHz, where 0 ≤ g ≤ 9 or 16 ≤ g ≤ 27 and where g shall be an integer. (1) A maximum offset of the *Nominal Centre Frequency* of ±200 kHz is permitted. Where the manufacturer decides to make use of this frequency offset, the manufacturer shall declare the actual centre frequencies used by the equipment. See clause 5.4.1, item a). The actual centre frequency for any given channel shall be maintained within the range fc ± 20 ppm. Equipment may have simultaneous transmissions on more than one *Operating Channel* with a *Nominal Channel Bandwidth* of 20 MHz.
Test Method:	Clause 5.4.2.2.1.2
Procedure:	This method is an alternative to the above method in case the UUT cannot be

	operated in an un-modulated mode. The UUT shall be connected to spectrum analyser. Max Hold shall be selected and the centre frequency adjusted to that of the UUT. The peak value of the power envelope shall be measured and noted. The span shall be reduced and the marker moved in a positive frequency increment until the upper, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f1. The marker shall then be moved in a negative frequency increment until the lower, (relative to the centre frequency), - 10 dBc point is reached. This value shall be noted as f2. The centre frequency is calculated as (f1 + f2) / 2.

4.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.1.2 Test Setup Diagram:



4.1.3 Test Data:

Please Refer to Appendix for Details.

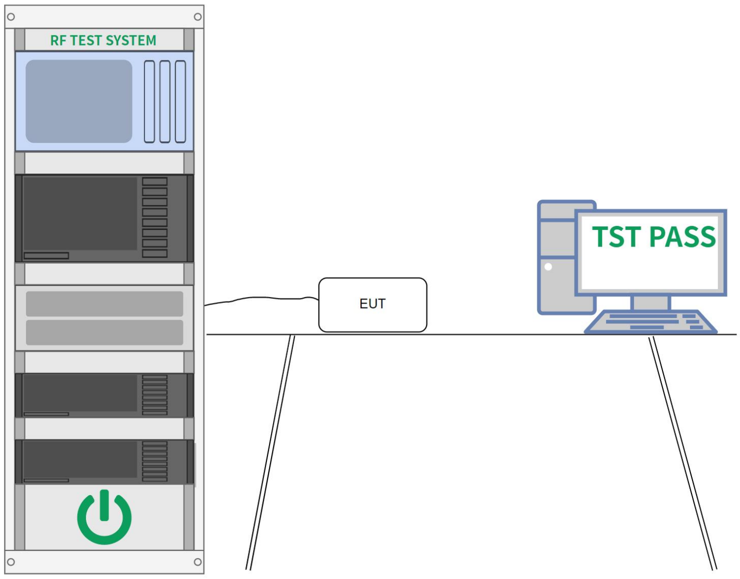
4.2 Nominal Channel Bandwidth and Occupied Channel Bandwidth

Test Requirement:	Clause 4.2.2
Test Limit:	The *Nominal Channel Bandwidth* for a single *Operating Channel* shall be 20 MHz. Alternatively, equipment may implement a lower *Nominal Channel Bandwidth* with a minimum of 5 MHz, providing they still comply with the *Nominal Centre Frequencies* defined in clause 4.2.1 (20 MHz raster). The *Occupied Channel Bandwidth* shall be between 80 % and 100 % of the *Nominal Channel Bandwidth* . In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet this requirement. The *Occupied Channel Bandwidth* might change with time/payload. During a *Channel Occupancy Time (COT)* , equipment may operate temporarily with an *Occupied Channel Bandwidth* of less than 80 % of its *Nominal Channel Bandwidth* with a minimum of 2 MHz.
Test Method:	Clause 5.4.3.2.1
Procedure:	The measurement procedure shall be as follows: **Step 1:** · Connect the UUT to the spectrum analyser and use the following settings: - Centre Frequency: The centre frequency of the channel under test - Resolution Bandwidth: 100 kHz - Video Bandwidth: 300 kHz - Frequency Span: 2 × Nominal Bandwidth (e.g. 40 MHz for a 20 MHz channel) - Sweep time: > 1 s; for larger Nominal Bandwidths, the sweep time may be increased until a value where the sweep time has no impact on the RMS value of the signal - Detector Mode: RMS - Trace Mode: Max Hold **Step 2:** · Wait for the trace to stabilize. **Step 3:** · Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement. · Use the 99 % bandwidth function of the spectrum analyser to measure the *Occupied Channel Bandwidth* of the UUT. This value shall be recorded. The measurement described in step 1 to step 3 above shall be repeated in case of simultaneous transmissions in non- adjacent channels.

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

4.3 RF output power, Transmit Power Control (TPC)

Test Requirement:	Clause 4.2.3
Test Limit:	General

The limits below are applicable to the system as a whole and in any possible configuration. This means that the antenna gain of the integral or dedicated antenna has to be taken into account as well as the additional (beamforming) gain in case of smart antenna systems (devices with multiple transmit chains).
In case of multiple (adjacent or non-adjacent) channels within the same sub-band, the total *RF Output Power* of all channels in that sub-band shall not exceed the limits defined in table 2 and table 3.
In case of multiple, non-adjacent channels operating in separate sub-bands, the total *RF Output Power* in each of the sub- bands shall not exceed the limits defined in table 2 and table 3.

Limits for RF output power and Power Density at the highest power level
TPC is not required for channels whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz.
For devices with TPC, the RF output power and the Power Density when configured to operate at the highest stated power level (P_H) of the TPC range shall not exceed the levels given in table 2.
Devices are allowed to operate without TPC. See table 2 for the applicable limits that shall apply in this case.
Table 2: Mean e.i.r.p. limits for RF output power and Power Density at the highest power level (PH)

Frequency range (MHz)	Mean e.i.r.p. limit for PH (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)

NOTE 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 23 dBm.
NOTE 2: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.
NOTE 3: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.

Limit for RF output power at the lowest power level (P_L) of the TPC range
For devices using TPC, the *RF Output Power* during a transmission burst when configured to operate at the lowest stated power level (PL) of the TPC range shall not exceed the levels given in table 3. For devices without TPC, the limits in table 3 do not apply.
Table 3: Mean e.i.r.p. limits for RF Output Power at the lowest power level of the TPC range

Frequency range	Mean e.i.r.p. (dBm) limit for PL
5 250 MHz to 5 350 MHz	17

	5 470 MHz to 5 725 MHz — 24 (see note) NOTE: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the band 5 250 MHz to 5 350 MHz.
Test Method:	Clause 5.4.4.2.1.1.4 Clause 5.4.4.2.1.2.4
Procedure:	· This option is for equipment having simultaneous transmissions in both sub-bands but which cannot be configured to transmit only in one sub-band. · This procedure first measures the peak power in each sub-band separately, then measures the Peak to Mean Power ratio for the overall transmission and uses this to calculate the RF Output Power (e.i.r.p.) in each sub- band separately using the measured values for peak power. · The test procedure shall be as follows: **Step 1: Measuring the Total Peak Power within the lower sub-band.** · Connect the UUT to the spectrum analyser and use the following settings: - Start Frequency: 5 100 MHz - Stop Frequency: 5 400 MHz - RBW: 1 MHz - VBW: 3 MHz - Detector Mode: Peak - Trace Mode: Max Hold - Sweep Time: Auto · Ensure that the noise floor of the spectrum analyser is at least 30 dB to 40 dB below the peak of the power envelope. If this is not possible (e.g. radiated measurements) reduce the bandwidth of the channel power function to a value which is still slightly above the *Nominal Channel Bandwidth* (e.g. +10 %) to avoid the noise floor influencing the measurement result. · When the trace is complete, use the "Channel Power" function to measure the total peak power of the transmissions within the band 5 150 MHz to 5 350 MHz. · For conducted measurements on devices with multiple transmit chains, the procedure above shall be repeated for each of the active transmit chains. The results shall be summed to provide the total peak power of the transmissions within the band 5 150 MHz to 5 350 MHz. **Step 2: Measuring the Total Peak Power within the upper sub-band.** · Change the Start Frequency to 5 420 MHz and the Stop Frequency to 5 775 MHz. · Ensure that the noise floor of the spectrum analyser is at least 30 dB to 40 dB below the peak of the power envelope. If this is not possible (e.g. radiated measurements) reduce the bandwidth of the channel power function to a value which is still slightly above the *Nominal Channel Bandwidth* (e.g. +10 %) to avoid the noise floor influencing the measurement result. · When the trace is complete, use the "Channel Power" function to measure the total peak power of all transmissions with the band 5 470 MHz to 5 725 MHz. · For conducted measurements on devices with multiple transmit chains, the procedure above shall be repeated for each of the active transmit chains. The results shall be summed to provide the total peak power of the transmissions within the band 5 470 MHz to 5 725 MHz. **Step 3: Calculating the Total Peak Power.** · Calculate the total peak power by adding the measured value for the band 5 150 MHz to 5 350 MHz in step 1 to the value measured for the band 5 470 MHz to 5 725 MHz in step 2. · Modern spectrum analysers may be able to measure the peak power in both sub-bands in one measurement in which case step 1 and step 2 can be combined. **Step 4: Measuring Total Mean Output Power.** · Sample the transmit signal from the device using a fast power sensor suitable for 6 GHz. Save the raw samples. The samples shall represent the RMS power of the signal. · Settings: - Sample speed: ≥ 10^6 Samples/s.

	- Measurement duration: Sufficient to capture a minimum of 10 transmitter bursts (see clause 5.3.1.1). · For conducted measurements on devices with one transmit chain: - Connect the power sensor to the transmit port, sample the transmit signal and store the raw data. Use these stored samples in all following steps. · For conducted measurements on devices with multiple transmit chains: - Connect one power sensor to each transmit port for a synchronous measurement on all transmit ports. - Trigger the power sensors so that they start sampling at the same time. Make sure the time difference between the samples of all sensors is less than 500 ns. - For each individual sampling point (time domain), sum the coincident power samples of all ports and store them. Use these summed samples in all following steps. · Find the start and stop times of each burst in the stored measurement samples. The start and stop times are defined as the points where the power is at least 30 dB below the highest value of the stored samples. In case of insufficient dynamic range, the value of 30 dB may need to be reduced appropriately. · Between the start and stop times of each individual burst, calculate the RMS (mean) power over the burst (Pburst) using the formula below: $P_{\text{burst}} = \frac{1}{k}\sum_{n=1}^{k} P_{\text{sample}}(n)$ (8) with 'k' being the total number of samples and 'n' the actual sample number · The highest of all Pburst values is the Total Mean Output Power and this value will be used for further calculations. **Step 5: Calculating the Peak to Mean Power Ratio.** · Using the value for Total Peak Power calculated in step 3 and the highest value for Total Mean Output Power measured in step 4, calculate the Peak to Average Power ratio in dB. **Step 6: Calculating the RF Output Power (e.i.r.p.) for each sub-band.** · The RF output power (e.i.r.p.) at the highest power level PH shall be calculated for each of the sub-bands from the Peak to Mean Power Ratio obtained in step 5 and the measured values for Peak Power in each of the sub- bands (see step 1 and step 2). These values (values A in dBm) will be used for maximum e.i.r.p. calculations: - Add the (stated) antenna assembly gain G in dBi of the individual antenna element. - If applicable, add the additional beamforming gain Y in dB. - If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used: § For each sub-band, PH (e.i.r.p.) shall be calculated using the formula below: PH = A + G + Y (dBm). (9) This option is for equipment having simultaneous transmissions in both sub-bands but which cannot be configured to transmit only in one sub-band. This procedure first measures the peak power in each sub-band separately, then measures the Peak to Mean Power ratio for the overall transmission and uses this to calculate the RF Output Power (e.i.r.p.) in each sub-band separately using the measured values for peak power. The test procedure shall be as follows: **Step 1: Measuring the Total Peak Power within the lower sub-band.** · Connect the UUT to the spectrum analyser and use the following settings: - Start Frequency: 5 100 MHz - Stop Frequency: 5 400 MHz - RBW: 1 MHz - VBW: 3 MHz - Detector Mode: Peak - Trace Mode: Max Hold

- Sweep Time: Auto
· Ensure that the noise floor of the spectrum analyser is at least 30 dB to 40 dB below the peak of the power envelope. If this is not possible (e.g. radiated measurements) reduce the bandwidth of the channel power function to a value which is still slightly above the *Nominal Channel Bandwidth* (e.g. +10 %) to avoid the noise floor influencing the measurement result.
· When the trace is complete, use the "Channel Power" function to measure the total peak power of all transmissions with the band 5 150 MHz to 5 350 MHz.
· For conducted measurements on devices with multiple transmit chains, the procedure above shall be repeated for each of the active transmit chains. The results shall be summed to provide the total peak power of the transmissions within the band 5 150 MHz to 5 350 MHz.

Step 2: Measuring the Total Peak Power within the upper sub-band.
· Change the Start Frequency to 5 420 MHz and the Stop Frequency to 5 775 MHz.
· Ensure that the noise floor of the spectrum analyser is at least 30 dB to 40 dB below the peak of the power envelope. If this is not possible (e.g. radiated measurements) reduce the bandwidth of the channel power function to a value which is still slightly above the *Nominal Channel Bandwidth* (e.g. +10 %) to avoid the noise floor influencing the measurement result.
· When the trace is complete, use the "Channel Power" function to measure the total peak power of all transmissions with the band 5 470 MHz to 5 725 MHz.
· For conducted measurements on devices with multiple transmit chains, the procedure above shall be repeated for each of the active transmit chains. The results shall be summed to provide the total peak power of the transmissions within the band 5 470 MHz to 5 725 MHz.

Step 3: Calculating the Total Peak Power.
· Calculate the total peak power by adding the measured value for the band 5 150 MHz to 5 350 MHz in step 1 to the value measured for the band 5 470 MHz to 5 725 MHz in step 2. Modern spectrum analysers may be able to measure the peak power in both sub-bands in one measurement in which case step 1 and step 2 can be combined.

Step 4: Measuring Total Mean Output Power.
· Sample the transmit signal from the device using a fast power sensor suitable for 6 GHz. Save the raw samples. The samples shall represent the RMS power of the signal.
· Settings:
- Sample speed: ≥ 10^6 Samples/s.
- Measurement duration: Sufficiently to capture a minimum of 10 transmitter bursts (see clause 5.3.1.1).
· For conducted measurements on devices with one transmit chain:
- Connect the power sensor to the transmit port, sample the transmit signal and store the raw data. Use these stored samples in all following steps.
· For conducted measurements on devices with multiple transmit chains:
- Connect one power sensor to each transmit port for a synchronous measurement on all transmit ports.
- Trigger the power sensors so that they start sampling at the same time. Make sure the time difference between the samples of all sensors is less than 500 ns.
- For each individual sampling point (time domain), sum the coincident power samples of all ports and store them. Use these summed samples in all following steps.
· Find the start and stop times of each burst in the stored measurement samples. The start and stop times are defined as the points where the power is at least 30 dB below the highest value of the stored samples. In case of insufficient dynamic range, the value of 30 dB may need to be reduced appropriately.
· Between the start and stop times of each individual burst calculate the RMS (mean) power over the burst (Pburst) using the formula below:

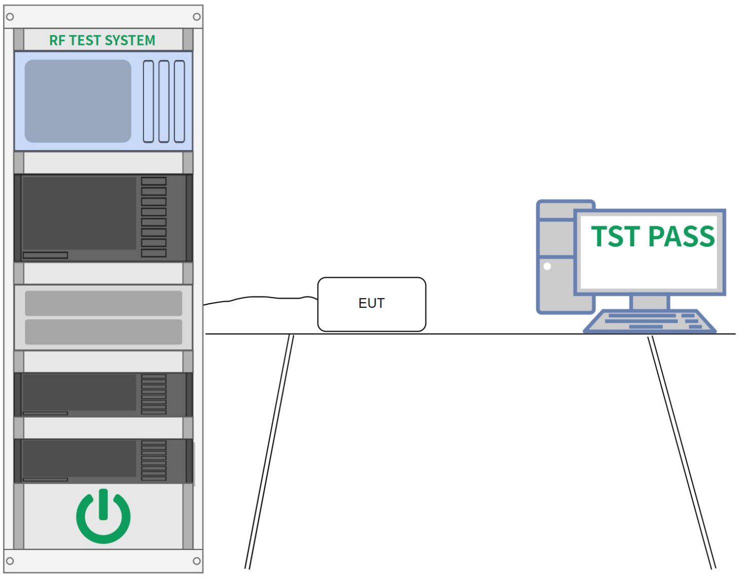
$$\boldsymbol{P}_{\text{burst}} = \frac{1}{k} \sum_{n=1}^{k} \boldsymbol{P}_{\text{sample}}(n) \quad (12)$$

	with 'k' being the total number of samples and 'n' the actual sample number · The highest of all Pburst values is the Total Mean Output Power and this value will be used for further calculations. **Step 5: Calculating the Peak to Mean Power ratio.** · Using the value for Total Peak Power calculated in step 3 and the highest value for Total Mean Output Power measured in step 4, calculate the Peak to Average Power ratio in dB. **Step 6: Calculating the RF Output Power (e.i.r.p.) for each sub-band.** · The RF output power (e.i.r.p.) at the lowest power level PL of the TPC range shall be calculated for each of the sub-bands from the Peak to Mean Power Ratio obtained in step 5 and the measured values for Peak Power in each of the sub-bands (see step 1 and step 2). These values (values A in dBm) will be used for maximum e.i.r.p. calculations: - Add the (stated) antenna assembly gain G in dBi of the individual antenna element. - If applicable, add the additional beamforming gain Y in dB. - If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used. - For each sub-band, PL (e.i.r.p.) shall be calculated using the formula below. These values shall be recorded in the test report: PL = A + G + Y (dBm) (13)

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Please Refer to Appendix for Details.

4.4 Power Density

Test Requirement:	Clause 4.2.3
Test Limit:	General The limits below are applicable to the system as a whole and in any possible configuration. This means that the antenna gain of the integral or dedicated antenna has to be taken into account as well as the additional (beamforming) gain in case of smart antenna systems (devices with multiple transmit chains). In case of multiple (adjacent or non-adjacent) channels within the same sub-band, the total *RF Output Power* of all channels in that sub-band shall not exceed the limits defined in table 2 and table 3. In case of multiple, non-adjacent channels operating in separate sub-bands, the total *RF Output Power* in each of the sub- bands shall not exceed the limits defined in table 2 and table 3. Limits for RF output power and Power Density at the highest power level TPC is not required for channels whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz. For devices with TPC, the RF output power and the Power Density when configured to operate at the highest stated power level (P_H) of the TPC range shall not exceed the levels given in table 2. Devices are allowed to operate without TPC. See table 2 for the applicable limits that shall apply in this case. Table 2: Mean e.i.r.p. limits for RF output power and Power Density at the highest power level (PH)

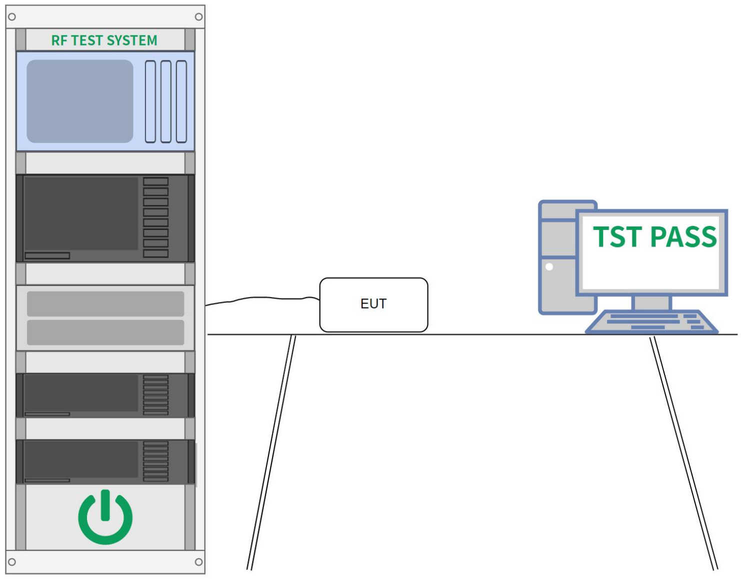
Frequency range (MHz)	Mean e.i.r.p. limit for PH (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)

NOTE 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 23 dBm.
NOTE 2: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.
NOTE 3: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.

4.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

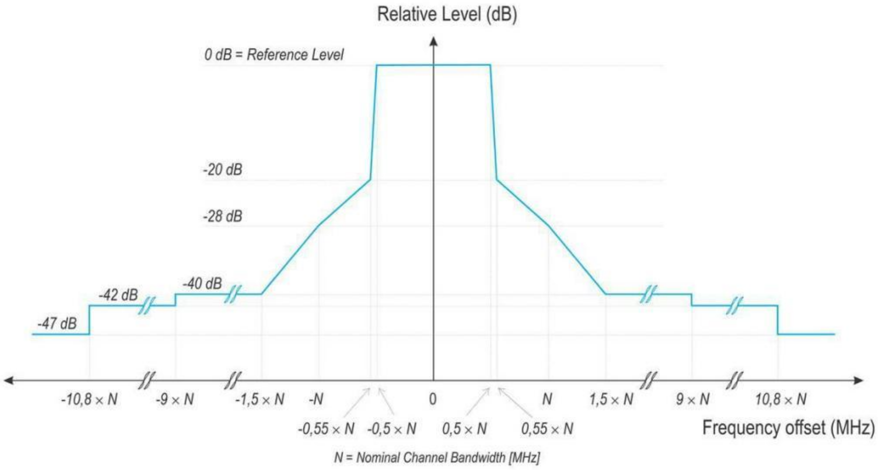
4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

4.5 Transmitter unwanted emissions within the 5 GHz RLAN bands

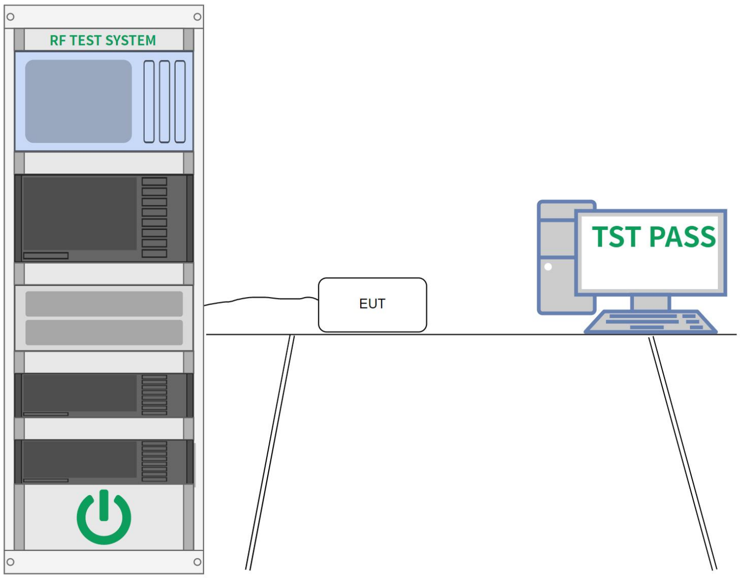
Test Requirement:	Clause 4.2.4.2
Test Limit:	 Figure 1: Transmit spectral power mask The mean Power Density (measured with a 1 MHz measurement bandwidth) of the transmitter unwanted emissions within the 5 GHz RLAN bands shall not exceed the limits of the mask provided in figure 1 or an absolute level of - 30 dBm/MHz, whichever is greater. The limits in figure 1 are relative to the maximum Power Density of the RLAN device when measured with a reference bandwidth of 1 MHz. The mask is only applicable within the band of operation. Beyond the band edges the requirements of clause 4.2.4.1 apply. In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet the limits provided in figure 1. For transmitter unwanted emissions within the 5 GHz RLAN bands, simultaneous transmissions in adjacent channels may be considered as one signal with an actual *Nominal Channel Bandwidth* of "n" times the individual *Nominal Channel Bandwidth* where "n" is the number of adjacent channels used simultaneously. For simultaneous transmissions in multiple non-adjacent channels, the overall transmit spectral power mask is constructed in the following manner. First, a mask as provided in figure 1 is applied to each of the channels. Then, for each frequency point, the greatest value from the spectral masks of all the channels assessed shall be taken as the overall spectral mask requirement at that frequency.
Test Method:	Clause 5.4.6.2.1.2
Procedure:	This method shall be used if the UUT is not capable of operating in a continuous transmit mode (duty cycle less than 100 %). In addition, this option can also be used as an alternative to option 1 for systems operating in a continuous transmit mode. **Step 1: Determination of the reference average power level.** · Spectrum analyser settings: - Resolution bandwidth: 1 MHz - Video bandwidth: 30 kHz - Detector mode: RMS - Trace Mode: Max Hold - Sweep time: ³ 1 min - Centre Frequency: Centre frequency of the channel being tested - Span: 2 × *Nominal Channel Bandwidth* · Use the marker to find the highest average power level of the power envelope of the UUT. This level shall be used as the reference level for the relative measurements. **Step 2: Determination of the relative average power levels.** · Adjust the frequency range of the spectrum analyser to allow the measurement to be performed within the sub- bands 5 150 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz. No other parameter of the spectrum analyser should be changed.

	Compare the relative power envelope of the UUT with the limits defined in clause 4.2.4.2.2.

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.5.2 Test Setup Diagram:



4.5.3 Test Data:

Please Refer to Appendix for Details.

4.6 Transmitter unwanted emissions outside the 5 GHz RLAN bands, conducted

Test Requirement:	Clause 4.2.4.1
Test Limit:	The level of transmitter unwanted emissions outside the 5 GHz RLAN bands shall not exceed the limits given in table 4. In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and e.i.r.p. for emissions above 1 GHz. Table 4: Transmitter unwanted emission limits outside the 5 GHz RLAN bands

Frequency range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 5,15 GHz	-30 dBm	1 MHz
5,35 GHz to 5,47 GHz	-30 dBm	1 MHz
5,725 GHz to 26 GHz	-30 dBm	1 MHz

Test Method:	Clause 5.4.5.2.1
Procedure:	**Pre-scan** The UUT shall be connected to a spectrum analyser capable of RF power measurements. This pre-scan test procedure shall be used to identify potential unwanted emissions of the UUT. **Step 1:** · The sensitivity of the spectrum analyser should be such that the noise floor is at least 12 dB below the limits given in clause 4.2.4.1.2, table 4. **Step 2:** · The unwanted emissions over the range 30 MHz to 1 000 MHz shall be identified. · Spectrum analyser settings: - Resolution bandwidth: 100 kHz - Video bandwidth: 300 kHz - Detector mode: Peak - Trace Mode: Max Hold - Sweep Points: ≥ 9 700 For spectrum analysers not supporting this number of sweep points, the frequency band may be segmented. For spectrum analysers capable of supporting twice this number of sweep points, the frequency adjustment in clause 5.4.5.2.1.2 (step 1, last bullet) may be omitted. - Sweep time: For non-continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 100 kHz frequency step, the measurement time is greater than two transmissions of the UUT. EXAMPLE 1: For non-continuous transmissions, if the UUT is using a test sequence as described in clause 5.3.1.1 with a transmitter on + off time of 2 ms, then the sweep time has to be greater than 4 ms per 100 kHz.

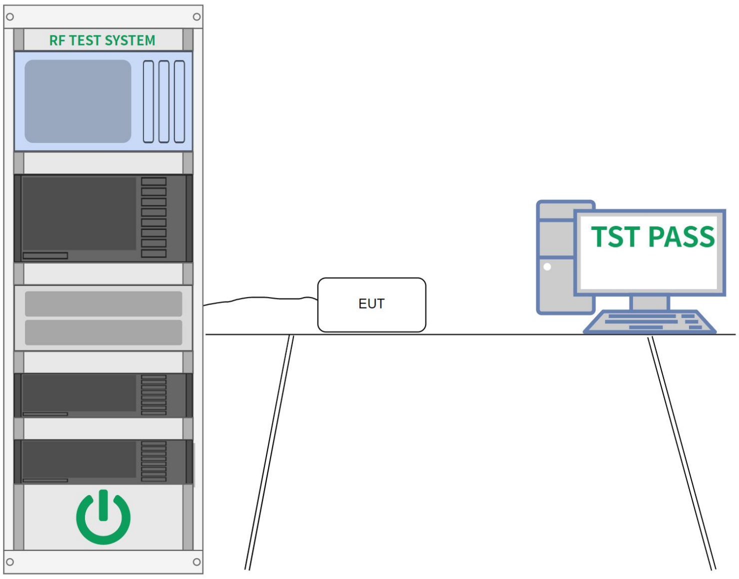
	· Allow the trace to stabilize. Any emissions identified that have a margin of less than 6 dB with respect to the limits given in clause 4.2.4.1.2, table 4 shall be individually measured using the procedure in clause 5.4.5.2.1.2 and compared to the limits given in clause 4.2.4.1.2, table 4. **Step 3:** · The unwanted emissions over the range 1 GHz to 26 GHz shall be identified. · Spectrum analyser settings: - Resolution bandwidth: 1 MHz - Video bandwidth: 3 MHz - Detector mode: Peak - Trace Mode: Max Hold - Sweep points: ≥ 25 000 For spectrum analysers not supporting this number of sweep points, the frequency band may be segmented. For spectrum analysers capable of supporting twice this number of sweep points, the frequency adjustment in clause 5.4.5.2.1.2 (step 1, last bullet) may be omitted. - Sweep time: For non-continuous transmissions (duty cycle less than 100 %), the sweep time shall be sufficiently long, such that for each 1 MHz frequency step, the measurement time is greater than two transmissions of the UUT. EXAMPLE 2: For non-continuous transmissions, if the UUT is using a test sequence as described in clause 5.3.1.1 with a transmitter on + off time of 2 ms, then the sweep time has to be greater than 4 ms per 1 MHz. · Allow the trace to stabilize. Any emissions identified that have a margin of less than 6 dB with respect to the limits given in clause 4.2.4.1.2, table 4 shall be individually measured using the procedure in clause 5.4.5.2.1.2 and compared to the limits given in clause 4.2.4.1.2, table 4. **Measurement of the emissions identified during the pre-scan** The limits for transmitter unwanted emissions in clause 4.2.4.1 refer to average power levels. The steps below shall be used to accurately measure the individual unwanted emissions identified during the pre-scan measurements above. **Continuous transmit signals:** For continuous transmit signals, a simple measurement using the RMS detector of the spectrum analyser is permitted. The measured values shall be recorded and compared with the limits in clause 4.2.4.1.2, table 4. **Non-continuous transmit signals:** For non-continuous transmit signals, the measurement shall be made only over the "on" part of the burst. **Step 1:** · The level of the emissions shall be measured in the time domain, using the following spectrum analyser settings: - Centre Frequency: Frequency of emission identified during the pre-scan - RBW: 100 kHz (< 1 GHz) / 1 MHz (> 1 GHz) - VBW: 300 kHz (< 1 GHz) / 3 MHz (> 1 GHz) - Frequency Span: 0 Hz - Sweep mode: Single Sweep - Sweep Time: Suitable to capture one transmission burst. Additional measurements may be needed to identify the length of the transmission burst. In case of continuous signals, the Sweep Time shall be set to 30 ms - Sweep points: Sweeptime [μs] / 1 μs with a maximum of 30 000 - Trigger: Video (burst signals) or Manual (continuous signals) - Detector: RMS - Trace Mode: Clear/Write · Adjust the centre frequency (fine tune) to capture the highest level of one burst of the emission to be measured. This fine tuning can be omitted for spectrum analysers capable of supporting twice this number of sweep points required in step 2 and step 3 from the pre-scan procedure in clause 5.4.5.2.1.1. **Step 2:**

	· Adjust the trigger level to select the transmissions with the highest power level. · Set a window (start and stop lines) to match with the start and end of the burst and in which the RMS power shall be measured using the Time Domain Power function. If the spurious emission to be measured is a continuous signal, the measurement window shall be set to match the start and stop times of the sweep. · Select RMS power to be measured within the selected window and note the result which is the RMS power of this particular spurious emission. Compare this value with the applicable limit provided by clause 4.2.4.1.2, table 4. Repeat this procedure for every emission identified during the pre-scan. The values and corresponding frequencies shall be recorded. In case of conducted measurements on smart antenna systems (equipment with multiple transmit chains), the measurements shall be repeated for each of the active transmit chains. Comparison with the applicable limits shall be done using either of the options given below: · Option 1: the results for each of the transmit chains for the corresponding 1 MHz segments shall be added and compared with the limits provided by table 4 in clause 4.2.4.1.2. Option 2: the results for each of the transmit chains shall be individually compared with the limits provided by table 4 in clause 4.2.4.1.2 after these limits have been reduced by 10 × log10 (Tch) (number of active transmit chains).

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.6.2 Test Setup Diagram:



4.6.3 Test Data:

Please Refer to Appendix for Details.

4.7 Receiver spurious emissions, conducted

Test Requirement:	Clause 4.2.5
Test Limit:	The spurious emissions of the receiver shall not exceed the limits given in table 5. In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and e.i.r.p. for emissions above 1 GHz. Table 5: Spurious radiated emission limits
Test Method:	Clause 5.4.7.2.1

Frequency range	Maximum power	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 26 GHz	-47 dBm	1 MHz

Procedure:

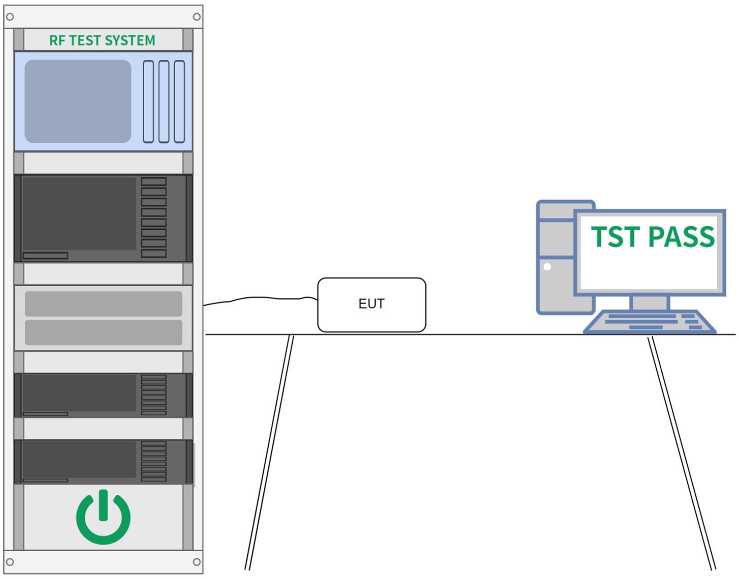
Pre-scan
The test procedure below shall be used to identify potential receiver spurious emissions of the UUT.
Step 1:
· The sensitivity of the spectrum analyser should be such that the noise floor is at least 12 dB below the limits given in clause 4.2.5.2, table 5.
Step 2:
· The emissions shall be measured over the range 30 MHz to 1 000 MHz.
· Spectrum analyser settings:
- Resolution bandwidth: 100 kHz
- Video bandwidth: 300 kHz
- Detector mode: Peak
- Trace Mode: Max Hold
- Sweep Points: ≥ 9 700
For spectrum analysers not supporting this number of sweep points, the frequency band may be segmented. For spectrum analysers capable of supporting twice this number of sweep points, the frequency adjustment in clause 5.4.7.2.1.2 (step 1, last bullet) may be omitted.
- Sweep time: Auto
· Wait for the trace to stabilize. Any emissions identified that have a margin of less than 6 dB with respect to the limits given in clause 4.2.5.2, table 5, shall be individually measured using the procedure in clause 5.4.7.2.1.2 and compared to the limits given in clause 4.2.5.2, table 5.
Step 3:
· The emissions shall now be measured over the range 1 GHz to 26 GHz.
· Spectrum analyser settings:
- Resolution bandwidth: 1 MHz
- Video bandwidth: 3 MHz
- Detector mode: Peak
- Trace mode: Max Hold
- Sweep Points: ≥ 25 000
For spectrum analysers not supporting this high number of sweep points, the frequency band may need to be segmented. For spectrum analysers capable of supporting twice this number of sweep points, the frequency adjustment in clause 5.4.7.2.1.2 (step 1, last bullet) may be omitted.
- Sweep time: Auto
· Wait for the trace to stabilize. Any emissions identified that have a margin of less than 6 dB with respect to the limits given in clause 4.2.5.2, table 5, shall be individually measured using the procedure in clause 5.4.7.2.1.2 and compared to the limits given in clause 4.2.5.2, table 5.
Measurement of the emissions identified during the pre-scan

	The limits for receiver spurious emissions in clause 4.2.5 refer to average power levels. The steps below shall be used to accurately measure the individual unwanted emissions identified during the pre-scan measurements above. This method assumes the spectrum analyser has a Time Domain Power function. **Step 1:** · The level of the emissions shall be measured using the following spectrum analyser settings: - Measurement Mode: Time Domain Power - Centre Frequency: Frequency of the emission identified during the pre-scan - Resolution Bandwidth: 100 kHz (emissions < 1 GHz) / 1 MHz (emissions > 1 GHz) - Video Bandwidth: 300 kHz (emissions < 1 GHz) / 3 MHz (emissions > 1 GHz) - Frequency Span: Zero Span - Sweep mode: Single Sweep - Sweep time: 30 ms - Sweep points: ≥ 30 000 - Trigger: Video (for burst signals) or Manual (for continuous signals) - Detector: RMS · Adjust the centre frequency (fine tune) to capture the highest level of one burst of the emission to be measured. This fine tuning can be omitted for spectrum analysers capable of supporting twice this number of sweep points required in step 2 and step 3 from the pre-scan procedure in clause 5.4.7.2.1.1. **Step 2:** · Set a window where the start and stop indicators match the start and end of the burst with the highest level and record the value of the power measured within this window. · If the spurious emission to be measured is a continuous transmission, the measurement window shall be set to the start and stop times of the sweep. **Step 3:** · In case of conducted measurements on smart antenna systems (equipment with multiple receive chains), step 2 shall be repeated for each of the active receive chains. · Sum the measured power (within the observed window) for each of the active receive chains. **Step 4:** The value defined in step 3 shall be compared to the limits defined in clause 4.2.5.2, table 5.

4.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

4.7.2 Test Setup Diagram:



4.7.3 Test Data:

Please Refer to Appendix for Details.

4.8 Adaptivity (Channel Access Mechanism)

Test Requirement:	Clause 4.2.7.3.2 Clause 4.2.7.3.3

Test Limit:

If a *Channel Occupancy* consists of more than one transmission the transmissions may be separated by gaps. The *Channel Occupancy Time* is the total duration of all transmissions and all gaps of 25 µs duration or less within a *Channel Occupancy* and shall not exceed the maximum *Channel Occupancy Time* in table 7 and table 8. The duration from the start of the first transmission within a *Channel Occupancy* until the end of the last transmission in that same *Channel Occupancy* shall not exceed 20 ms.
The *Initiating Device* may have data to be transmitted in different *Priority Classes* and therefore the *Channel Access Mechanism* is allowed to operate different *Channel Access Engines* as described in clause 4.2.7.3.2.6 simultaneously (one for each implemented *Priority Class*).
Table 7: Priority Class dependent Channel Access parameters for *Supervising Devices*

Class #	p0	CWmin	CWmax	Maximum Channel Occupancy Time (COT)
4	1	3	7	2 ms
3	1	7	15	4 ms
2	3	15	63	6 ms (see note 1 and note 2)
1	7	15	1 023	6 ms (see note 1)

NOTE 1: The maximum *Channel Occupancy Time* (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration of a pause shall be 100 µs. The maximum duration (Channel Occupancy)before including any such pause shall be 6 ms. Pause duration is not included in the channel occupancy time.
NOTE 2: The maximum Channel Occupancy Time (COT) of 6 ms may be increased to 10 ms by extending CW to CW × 2 + 1 when selecting the random number q for any backoff(s) that precede the Channel Occupancy that may exceed 6 ms or which follow the Channel Occupancy that exceeded 6 ms. The choice between preceding or following a Channel Occupancy shall remain unchanged during the operation time of the device.
NOTE 3: The values for p0, CWmin, CWmaxare minimumvalues. Greater values are allowed.

Table 8: Priority Class dependent Channel Access parameters for *Supervised Devices*

Class #	p0	CWmin	CWmax	Maximum Channel Occupancy Time (COT)
4	2	3	7	2 ms
3	2	7	15	4 ms
2	3	15	1 023	6 ms (see note 1)
1	7	15	1 023	6 ms (see note 1)

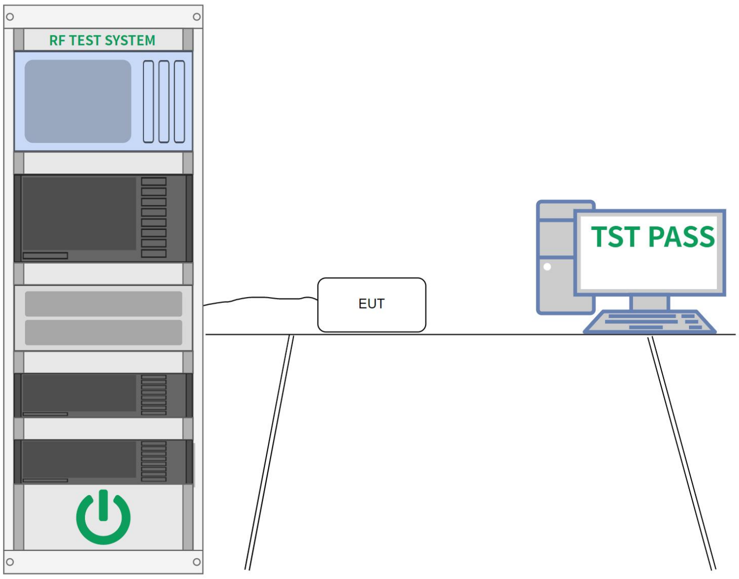
NOTE 1: The maximum *Channel Occupancy Time* (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration

	of a pause shall be 100 µs. The maximum duration (Channel Occupancy)before including any such pause shall be 6 ms. Pause duration is not included in the channel occupancy time. NOTE 2: The values for p0, CWmin, CWmaxare minimumvalues. Greater values are allowed. The *ED Threshold* level *(TL)* depends on the type of equipment: Option 1: For equipment that for its operation in the 5 GHz bands is conforming to IEEE 802.11™-2016 [9], clause 17, clause 19 or clause 21, or any combination of these clauses, the *ED Threshold Level (TL)* is independent of the equipment's maximum transmit power (P_H). Assuming a 0 dBi receive antenna the*ED Threshold Level (TL)* shall be: TL = -75 dBm/MHz (2) Option 2: For equipment conforming to one or more of the clauses listed in Option 1, and to at least one other operating mode, and for equipment conforming to none of the clauses listed in Option 1, the *ED Threshold Level (TL)* shall be proportional to the equipment's maximum transmit power (P_H). Assuming a 0 dBi receive antenna the*ED Threshold Level (TL)* shall be: For $P_H \leq$ 13 dBm: TL = -75 dBm/MHz For 13 dBm < P_H < 23 dBm: TL = -85 dBm/MHz + (23 dBm - P_H) (3) For $P_H \geq$ 23 dBm: TL = -85 dBm/MHz Equipment shall consider a channel to be occupied as long as other RLAN transmissions are detected at a level greater than the TL. The use of Short Control Signalling Transmissions is constrained as follows: · within an observation period of 50 ms, the number of *Short Control Signalling Transmissions* by the equipment shall be equal to or less than 50; and the total duration of the equipment's *Short Control Signalling Transmissions* shall be less than 2 500 µs within said observation period.
Test Method:	Clause 5.4.9.3.2
Procedure:	Clause 5.4.9.2.4 Clause 5.4.9.3.2

4.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM10				
Final test mode:	TM10				

4.8.2 Test Setup Diagram:



4.8.3 Test Data:

Please Refer to Appendix for Details.

4.9 Receiver Blocking

<table>
<tr><td>Test Requirement:</td><td>Clause 4.2.8</td></tr>
<tr><td>Test Limit:</td><td>While maintaining the minimum performance criteria as defined in clause 4.2.8.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined in table 9.
Table 9: Receiver Blocking parameters
<table>
<tr><td rowspan="2">Wanted signal mean power from companion device (dBm)</td><td rowspan="2">Blocking signal frequency (MHz)</td><td colspan="2">Blocking signal power (dBm) (see note 2)</td><td rowspan="2">Type of blocking signal</td></tr>
<tr><td>Master or Slave with radar detection (see table D.2, note 2)</td><td>Slave without radar detection (see table D.2, note 2)</td></tr>
<tr><td>Pmin + 6 dB</td><td>5 100</td><td>-53</td><td>-59</td><td>Continuous Wave</td></tr>
<tr><td>Pmin + 6 dB</td><td>4 900
5 000
5 975</td><td>-47</td><td>-53</td><td>Continuous Wave</td></tr>
<tr><td colspan="5">NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined clause 4.2.8.3 in the absence of any blocking signal.
NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the same levels should be used at the antenna connector irrespective of antenna gain.</td></tr>
</table>
</td></tr>
<tr><td>Test Method:</td><td>Clause 5.4.10.2.1</td></tr>
<tr><td>Procedure:</td><td>For systems using multiple receive chains only one chain need to be tested. All other receiver inputs shall be terminated.

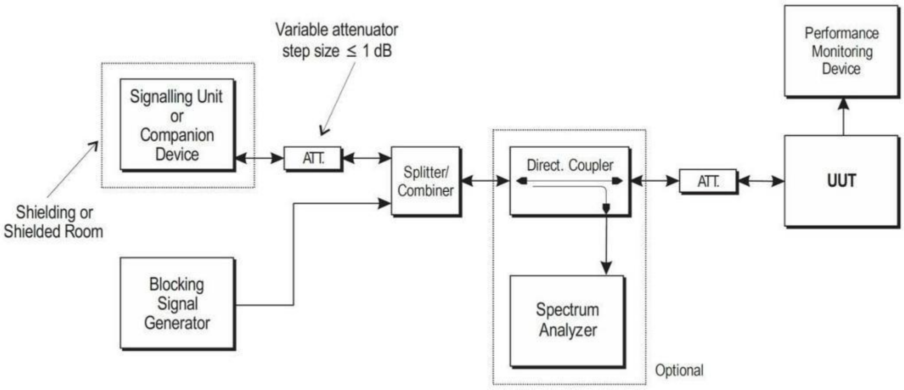
Figure 18 shows the test set-up which can be used for performing the receiver blocking test. The companion device may require appropriate shielding or may need to be put in a shielded room to prevent it may have a negative impact on the measurement.


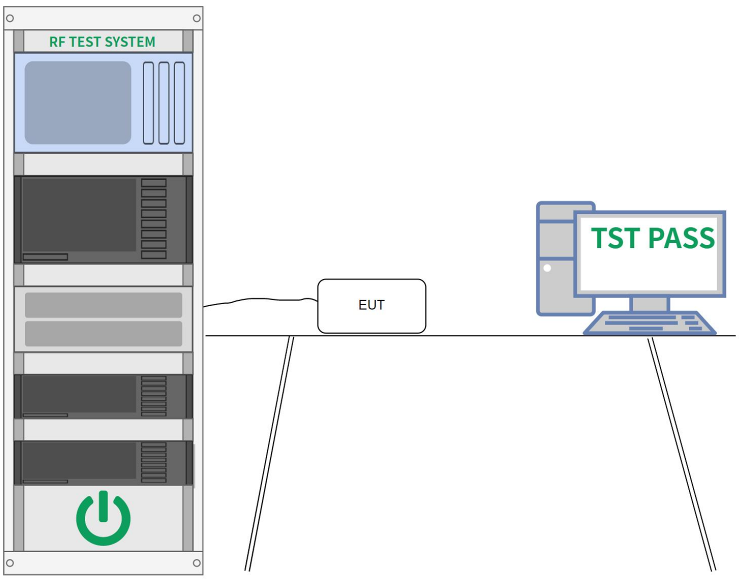
Figure 18: Test Set-up for receiver blocking
The steps below define the procedure to verify the receiver blocking requirement as described in clause 4.2.8.
Step 1:
· The UUT shall be set to the first operating frequency to be tested (see clause 5.3.2).
Step 2:</td></tr>
</table>

	· The blocking signal generator is set to the first frequency as defined in table 9. **Step 3:** · With the blocking signal generator switched off a communication link is set up between the UUT and the associated companion device using the test setup shown in figure 18. The attenuation of the variable attenuator shall be increased in 1 dB steps to a value at which the minimum performance criteria as specified in clause 4.2.8.3 is still met. The resulting level for the wanted signal at the input of the UUT is P_{min} . · This signal level (P_{min}) is increased by 6 dB resulting in a new level (Pmin + 6 dB) of the wanted signal at the UUT receiver input. **Step 4:** · The level of the blocking signal at the UUT input is set to the level provided in table 9. It shall be verified and recorded in the test report that the performance criteria as specified in clause 4.2.8.3 are met. · If the performance criteria as specified in clause 4.2.8.3 are met, the level of the blocking signal at the UUT may be further increased (e.g. in steps of 1 dB) until the level whereby the performance criteria as specified in clause 4.2.8.3 are no longer met. The highest level at which the performance criteria are met is recorded in the test report. **Step 5:** · Repeat step 4 for each remaining combination of frequency and level as specified in table 9. **Step 6:** Repeat step 2 to step 5 with the UUT operating at the other operating frequencies at which the blocking test has to be performed. See clause 5.3.2.

4.9.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.5 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM7, TM8, TM9				
Final test mode:	TM7, TM8, TM9				

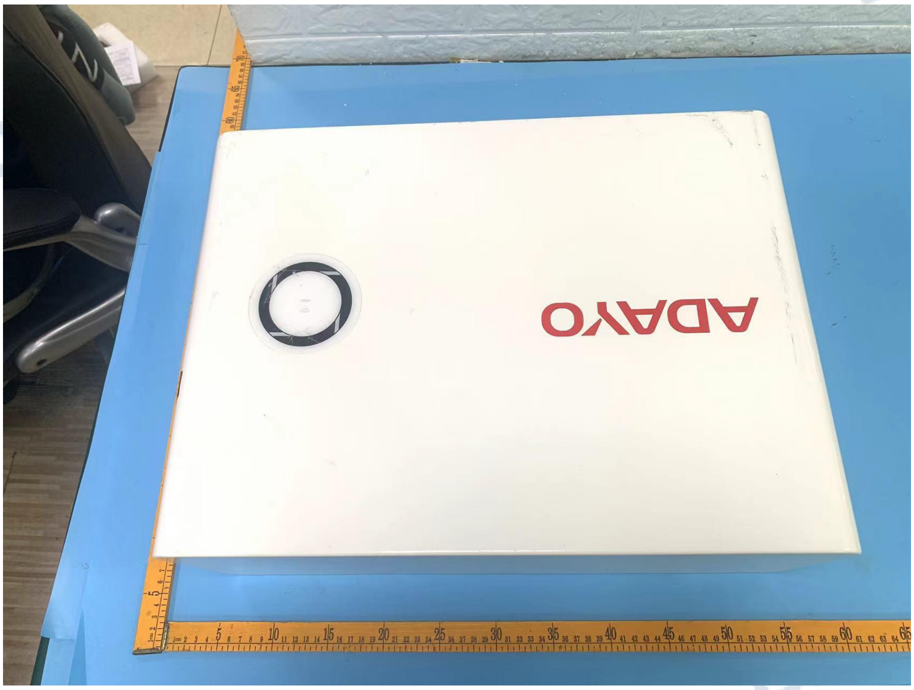
4.9.2 Test Setup Diagram:



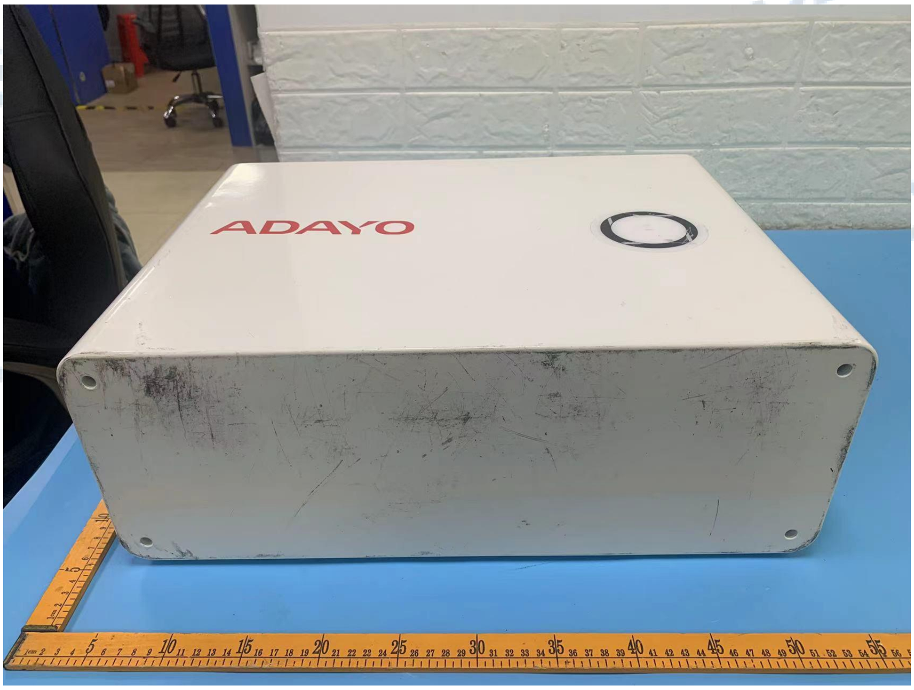
4.9.3 Test Data:

Please Refer to Appendix for Details.

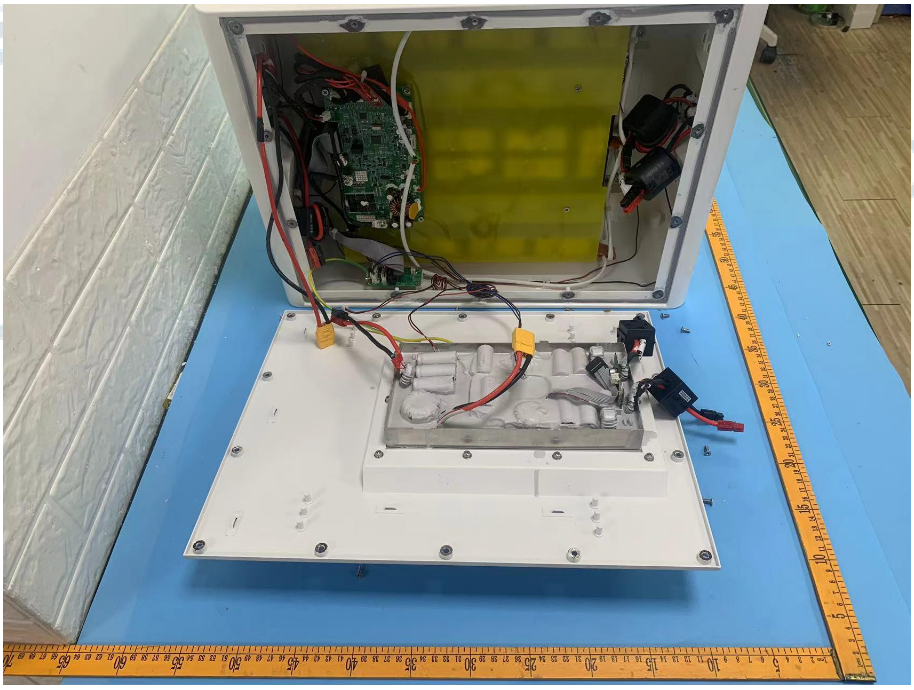
5 PHOTOS OF THE EUT

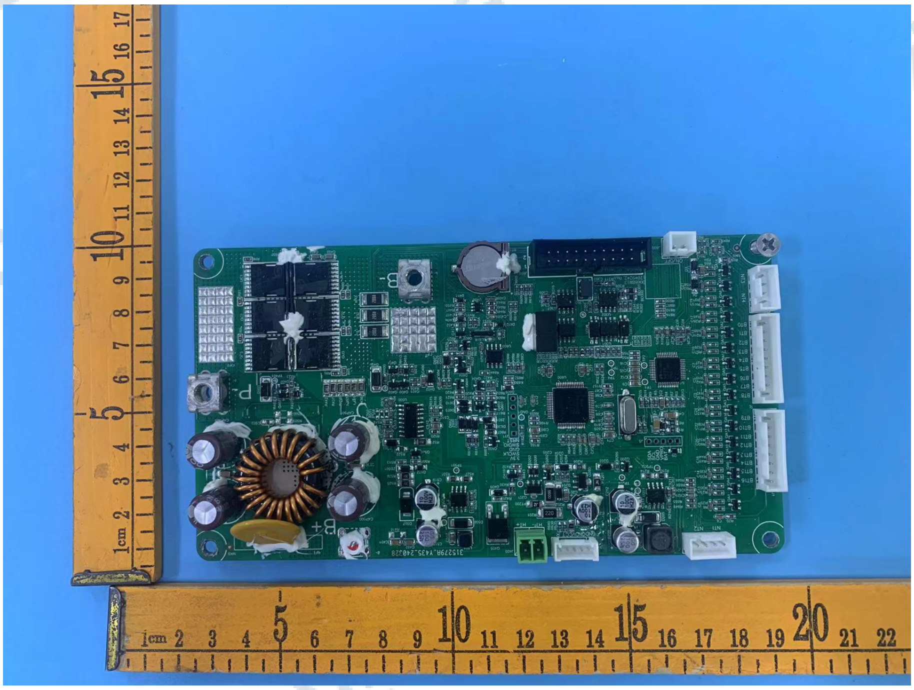
External


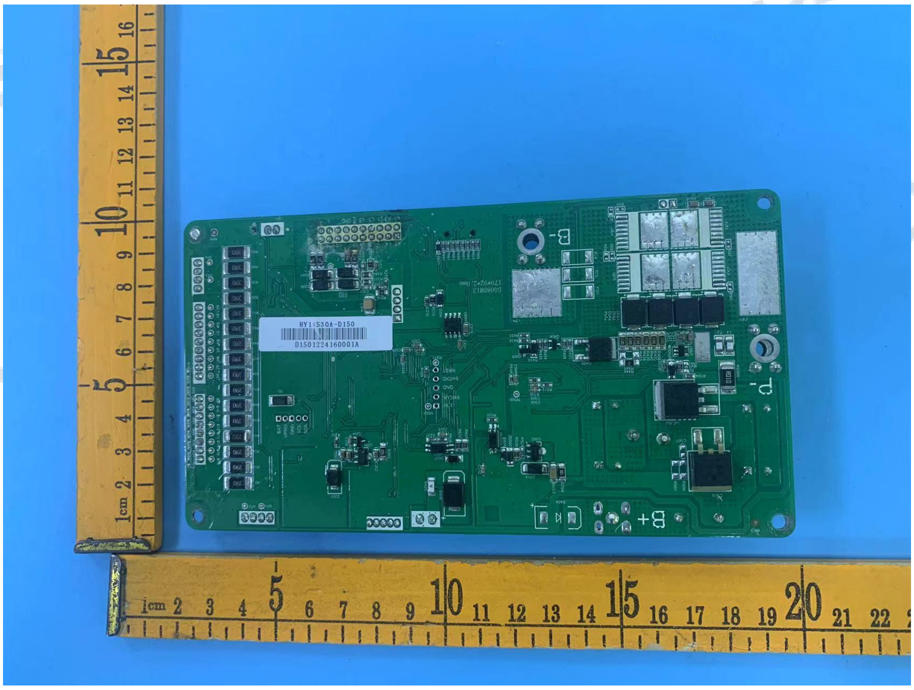

ADAYO
WIFI
PV OUT PUT
ON/OFF
RESET

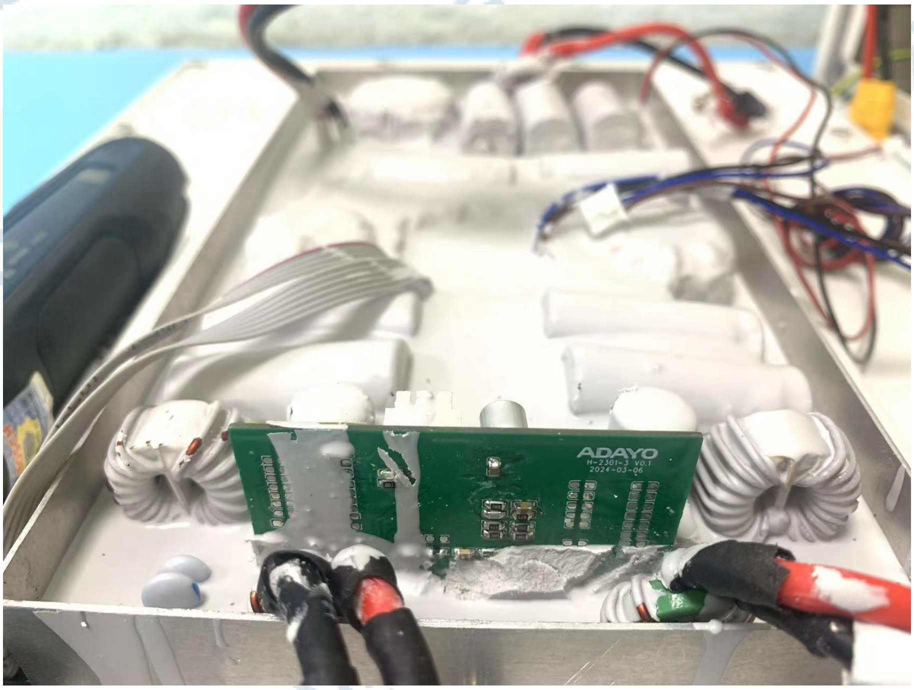

ADAYO

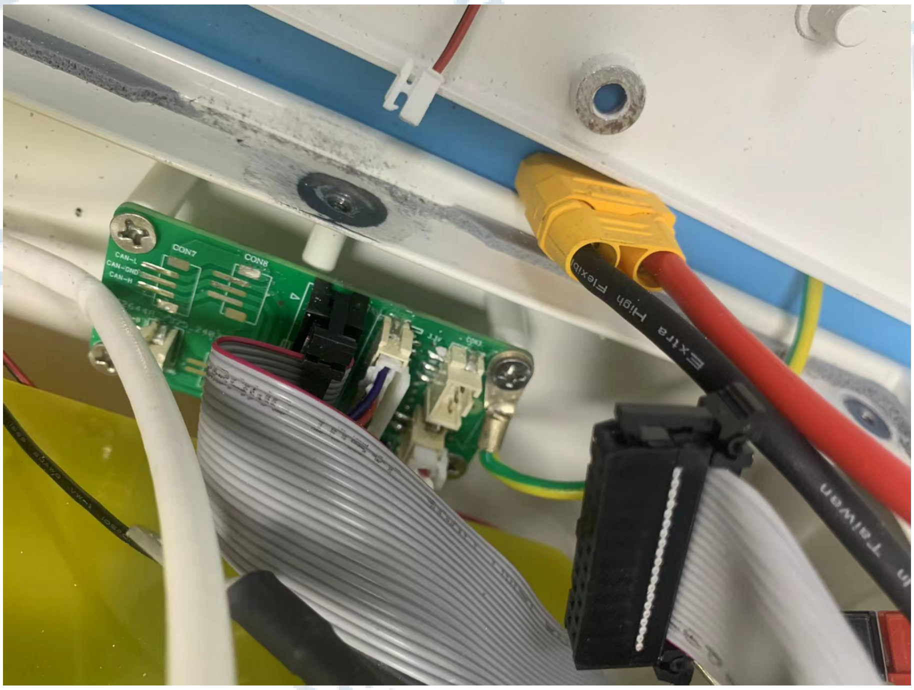
Internal

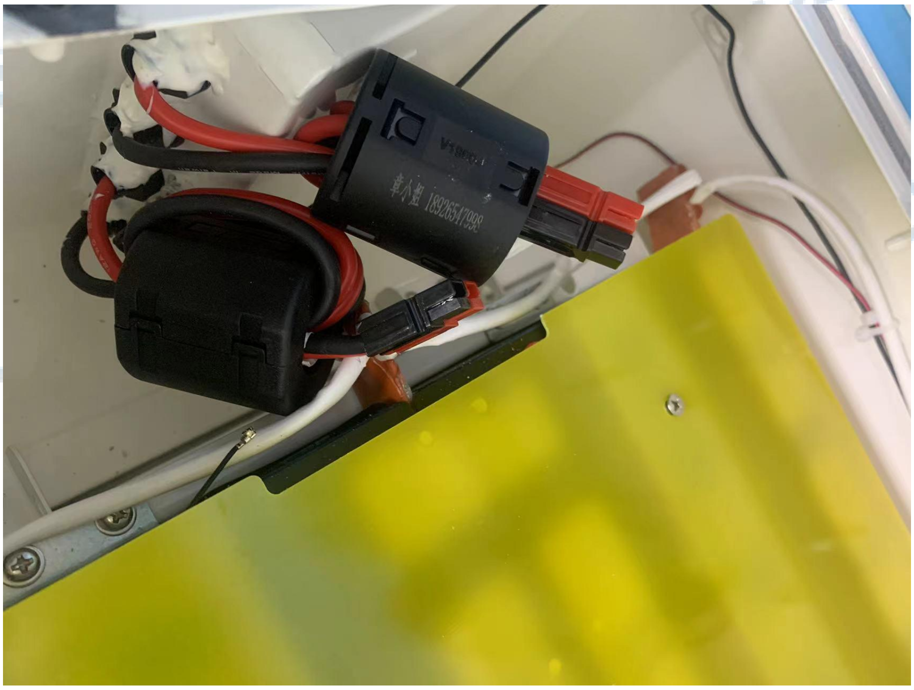


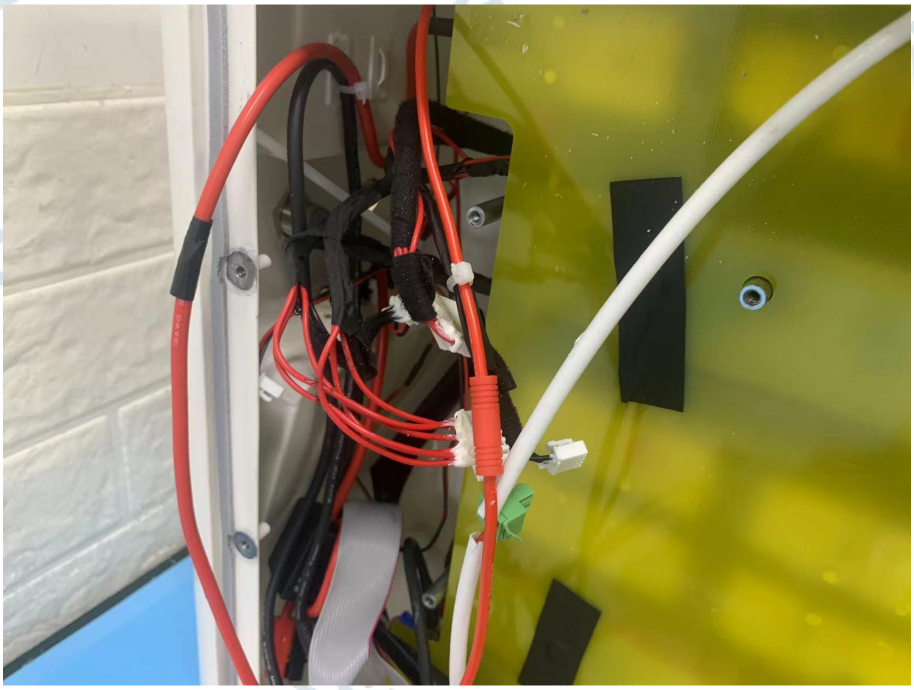





ADAYO







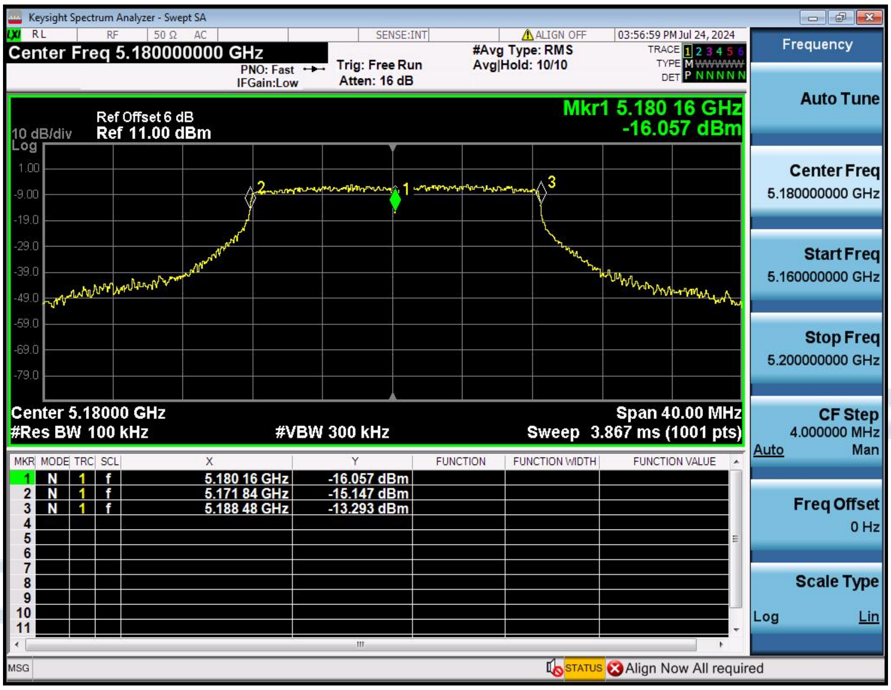
Appendix

HT240718003--DA802--5.2G--CE
CE_5.2G_WIFI (EN 301893 V2.1.1_2017-05) Test Data

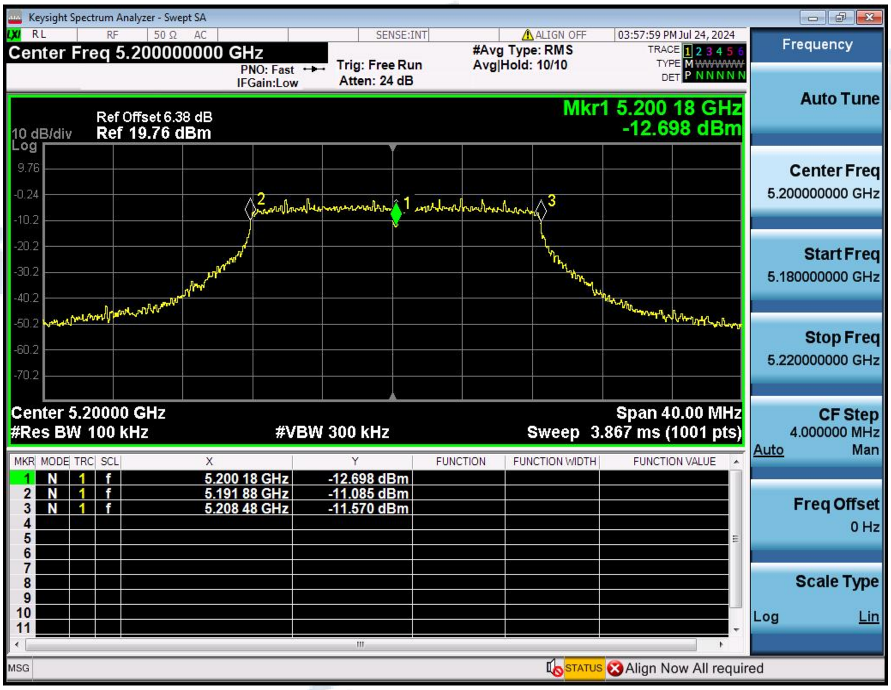
1. Nominal Centre frequencies

Condition	Antenna	Modulation	Frequency(MHz)	Measured Frequency (MHz)	Deviation (ppm)	limit(ppm)	Result
NVNT	ANT1	802.11a	5180	5180.160	30.89	±20	Fail
NVNT	ANT1	802.11a	5200	5200.180	34.62	±20	Fail
NVNT	ANT1	802.11a	5240	5240.160	30.53	±20	Fail
NVNT	ANT1	802.11n(HT20)	5180	5180.180	34.75	±20	Fail
NVNT	ANT1	802.11n(HT20)	5200	5200.180	34.62	±20	Fail
NVNT	ANT1	802.11n(HT20)	5240	5240.180	34.35	±20	Fail
NVNT	ANT1	802.11n(HT40)	5190	5190.160	30.83	±20	Fail
NVNT	ANT1	802.11n(HT40)	5230	5230.200	38.24	±20	Fail

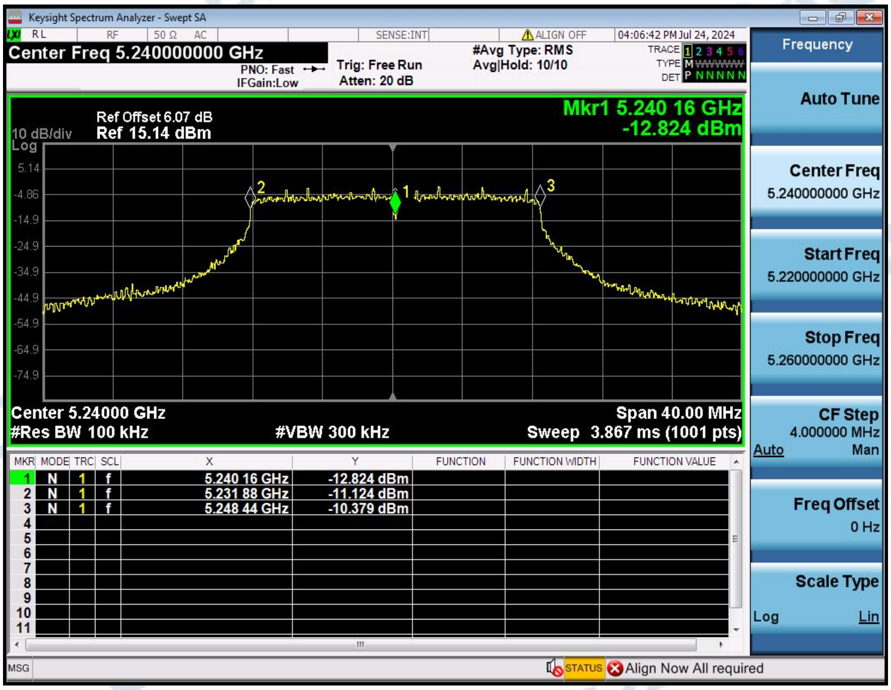
Nominal_Centre_frequencies_NVNT_ANT1_802_11a_5180



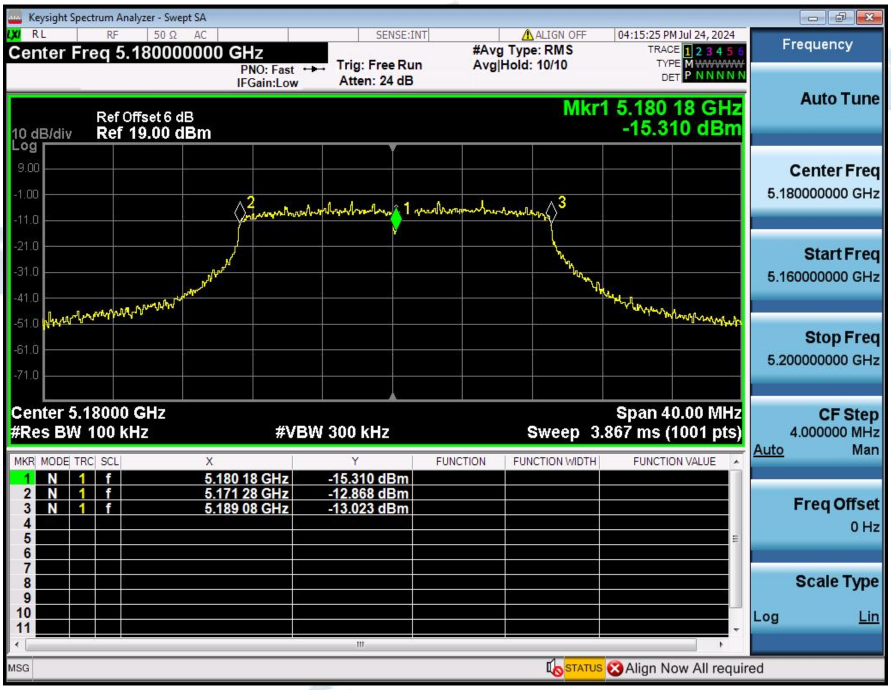
Nominal_Centre_frequencies_NVNT_ANT1_802_11a_5200



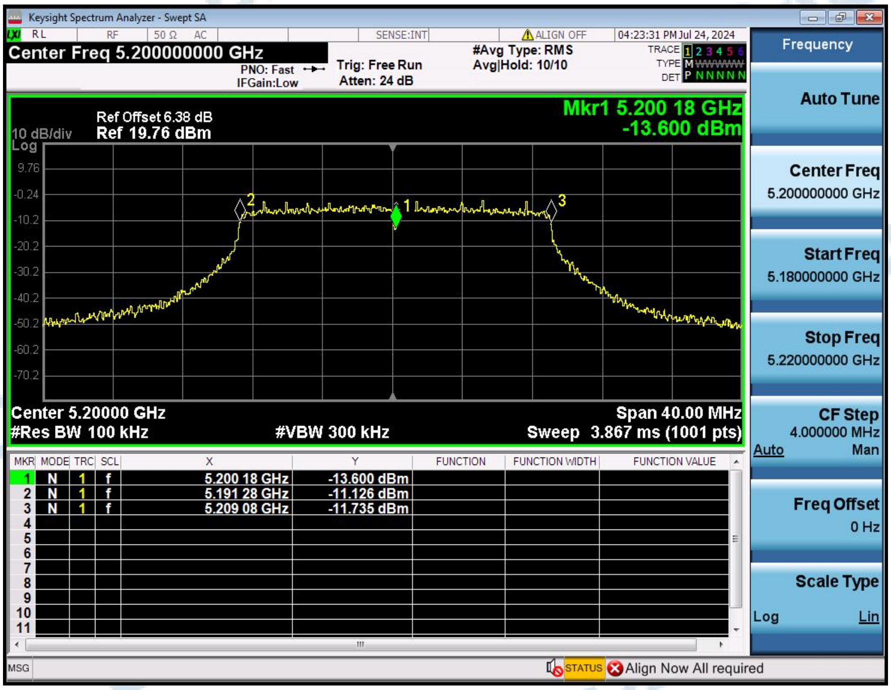
Nominal_Centre_frequencies_NVNT_ANT1_802_11a_5240



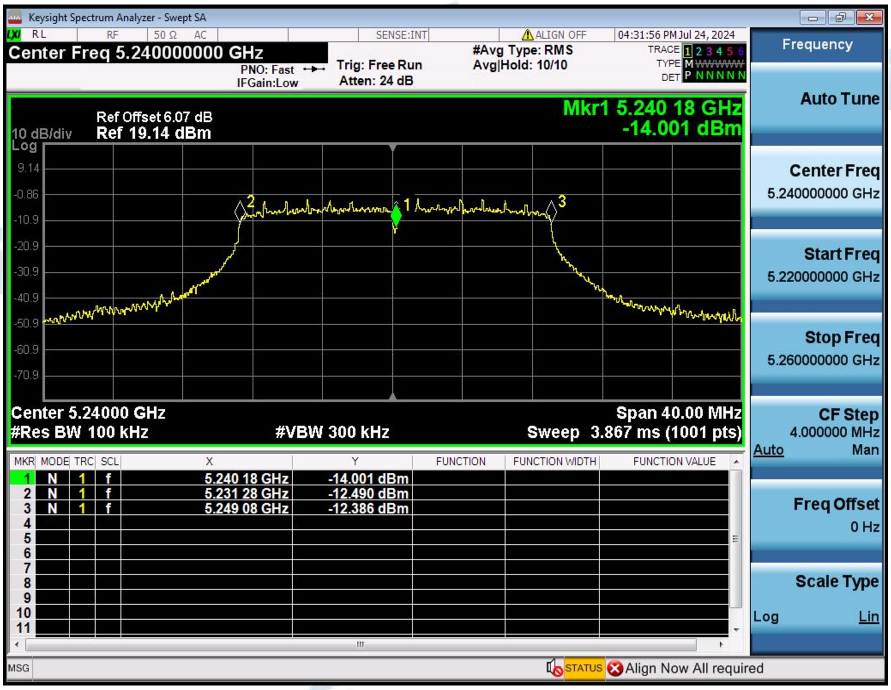
Nominal_Centre_frequencies_NVNT_ANT1_802_11n(HT20)_5180



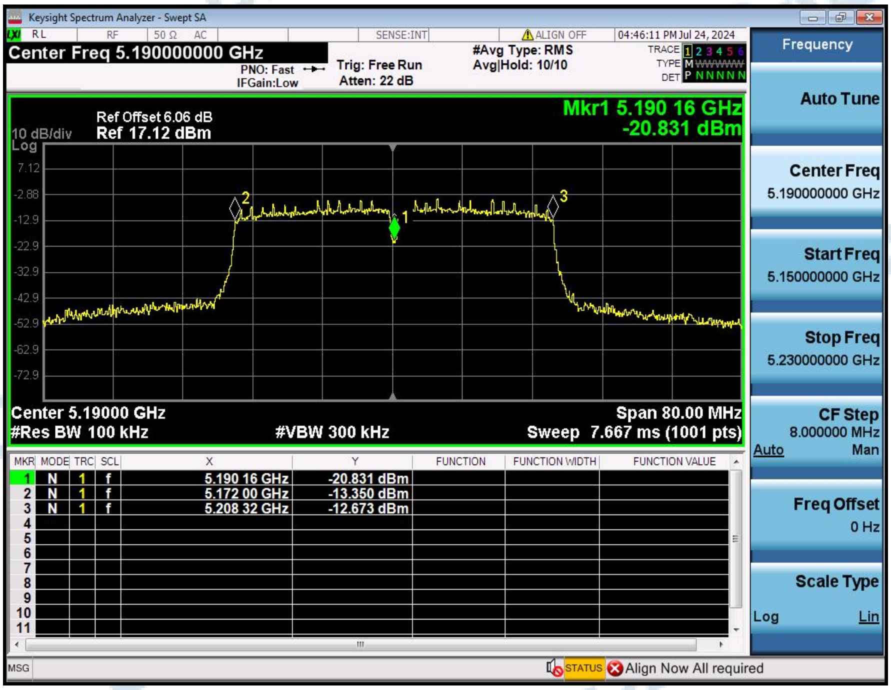
Nominal_Centre_frequencies_NVNT_ANT1_802_11n(HT20)_5200



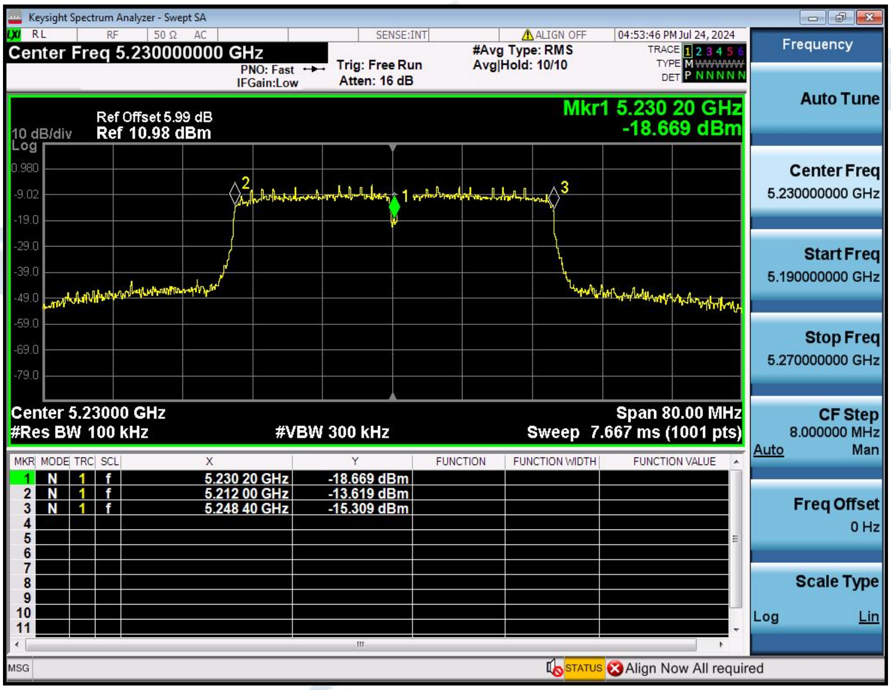
Nominal_Centre_frequencies_NVNT_ANT1_802_11n(HT20)_5240



Nominal_Centre_frequencies_NVNT_ANT1_802_11n(HT40)_5190



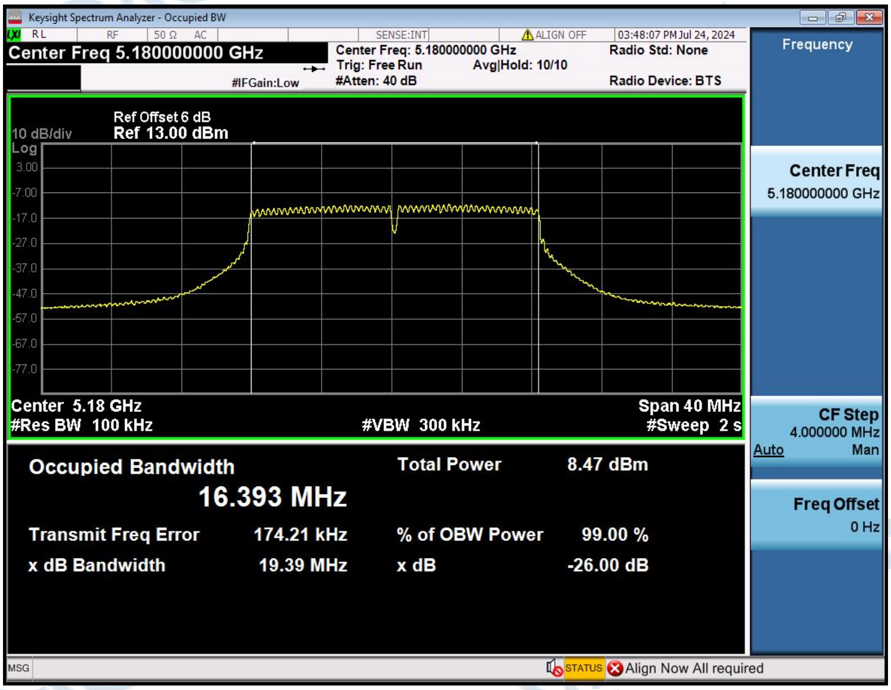
Nominal_Centre_frequencies_NVNT_ANT1_802_11n(HT40)_5230


Keysight Spectrum Analyzer - Swept SA
Center Freq 5.230000000 GHz
Trig: Free Run
Atten: 16 dB
#Avg Type: RMS
Avg|Hold: 10/10
04:53:46 PM Jul 24, 2024
Ref Offset 5.99 dB
10 dB/div Ref 10.98 dBm
Mkr1 5.230 20 GHz
-18.669 dBm
Center 5.23000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 80.00 MHz
Sweep 7.667 ms (1001 pts)
1 N 1 f 5.230 20 GHz -18.669 dBm
2 N 1 f 5.212 00 GHz -13.619 dBm
3 N 1 f 5.248 40 GHz -15.309 dBm
Frequency
Auto Tune
Center Freq 5.230000000 GHz
Start Freq 5.190000000 GHz
Stop Freq 5.270000000 GHz
CF Step 8.000000 MHz
Freq Offset 0 Hz
Scale Type
Align Now All required

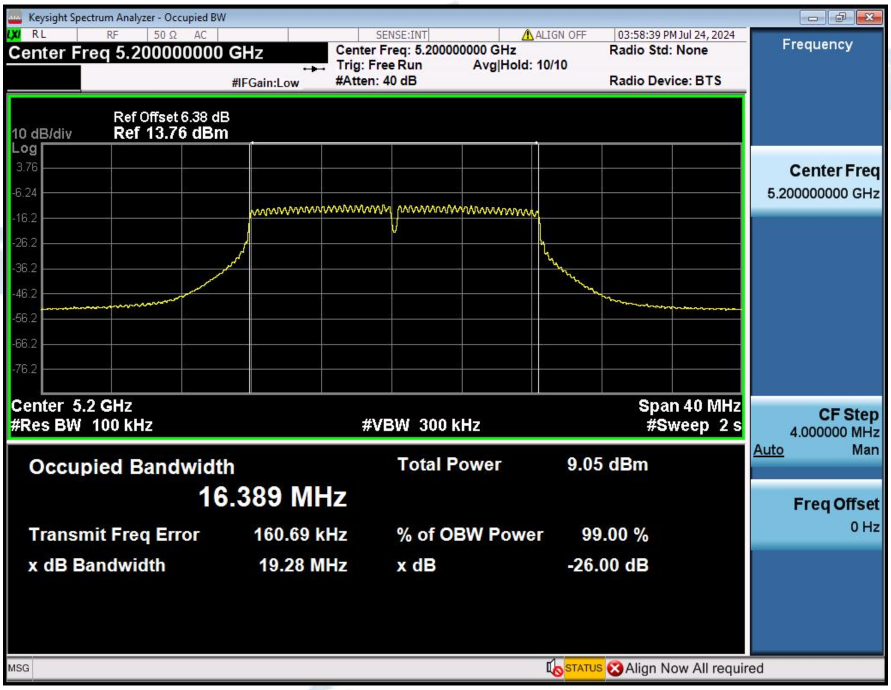
2. 99% Occupied Bandwidth

Condition	Antenna	Mode	Frequency (MHz)	99%%BW(MHz)	Declared BW(MHz)	Bandwidth Ratio(%)	Limit(%)	Result
NVNT	ANT1	802.11a	5180.00	16.39	20	81.96	80~100	Pass
NVNT	ANT1	802.11a	5200.00	16.39	20	81.94	80~100	Pass
NVNT	ANT1	802.11a	5240.00	16.39	20	81.94	80~100	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	17.58	20	87.92	80~100	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	17.58	20	87.92	80~100	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	17.59	20	87.93	80~100	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	35.84	40	89.61	80~100	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	35.97	40	89.91	80~100	Pass

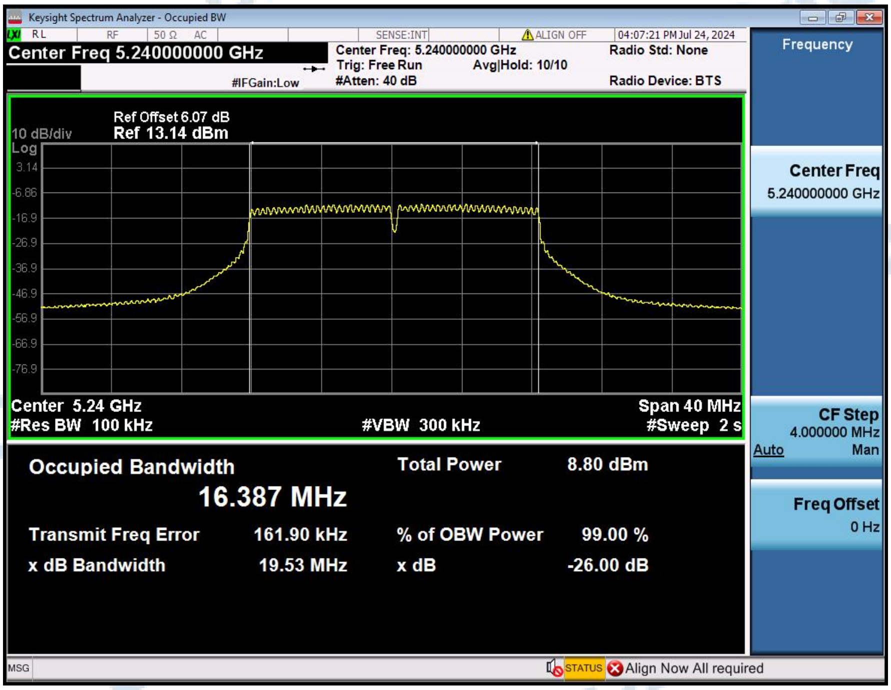
99%_Occupied_Bandwidth_NVNT_ANT1_802_11a_5180



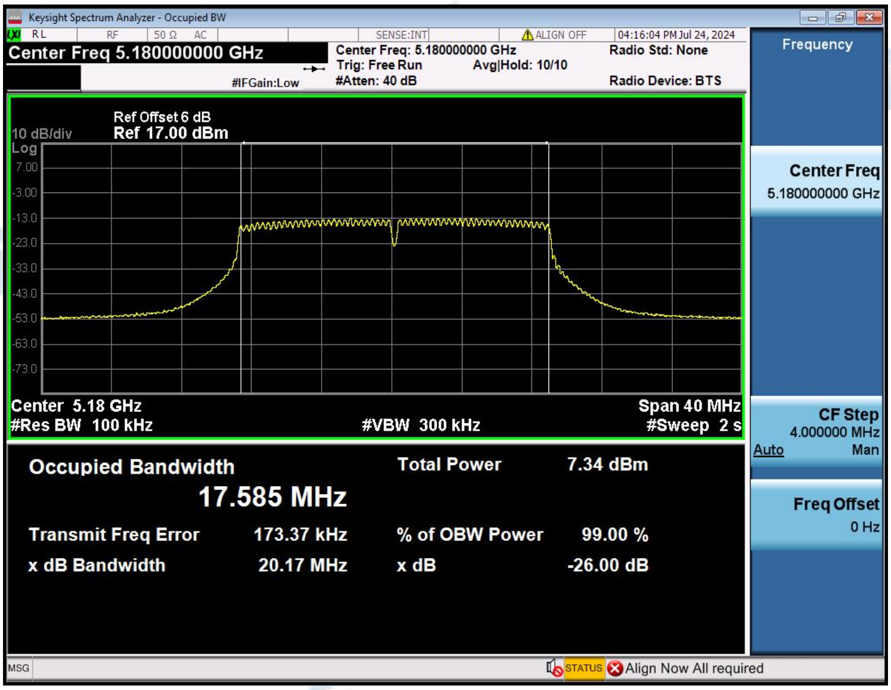
99%_Occupied_Bandwidth_NVNT_ANT1_802_11a_5200



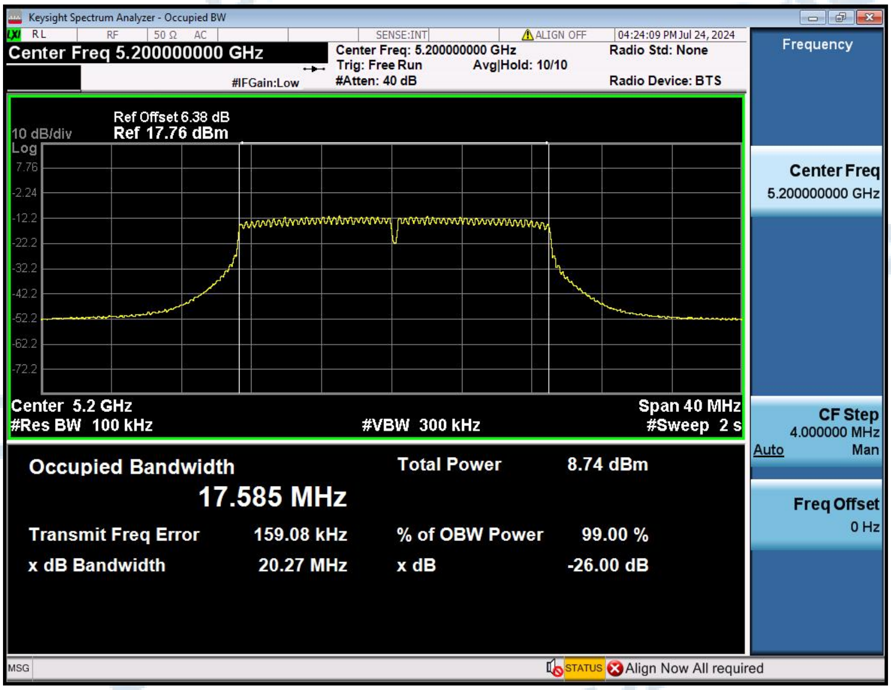
99%_Occupied_Bandwidth_NVNT_ANT1_802_11a_5240



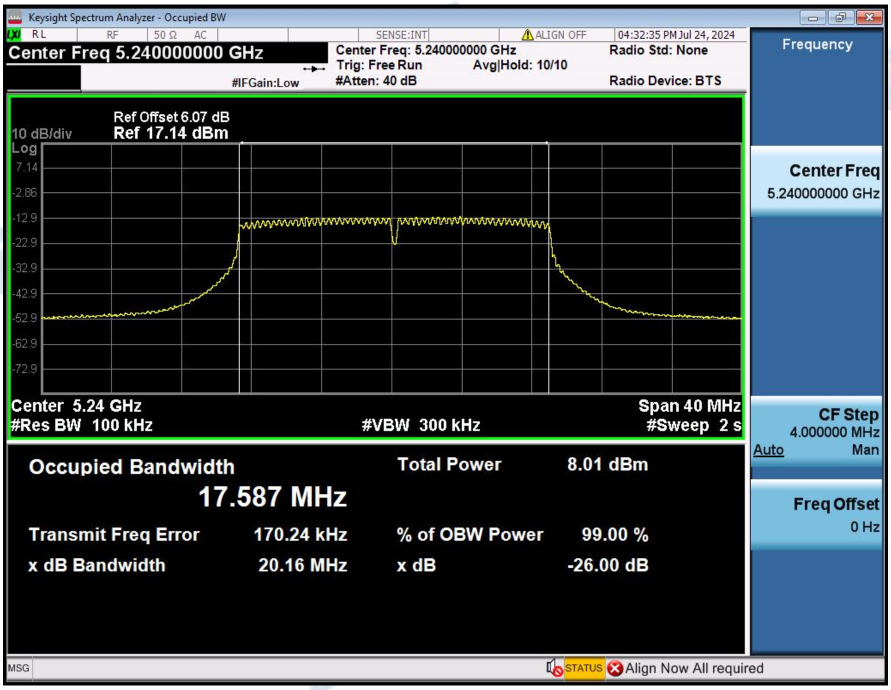
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_5180



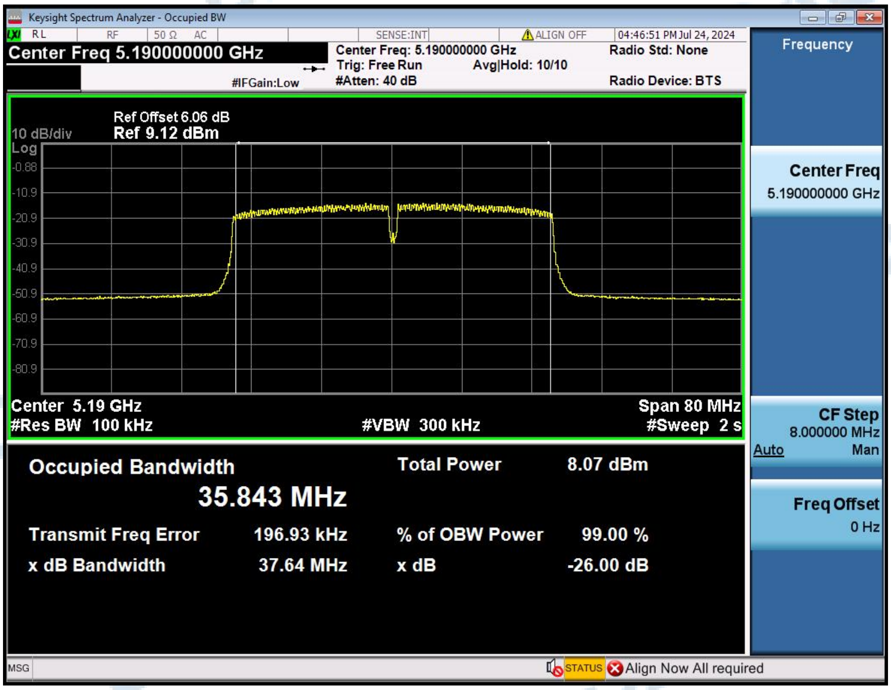
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_5200



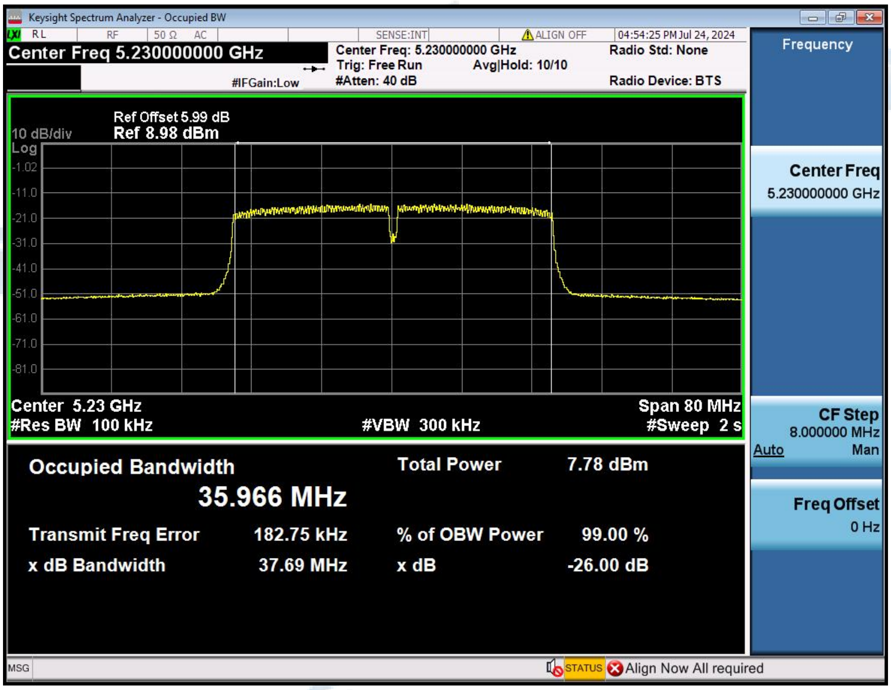
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT20)_5240



99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_5190



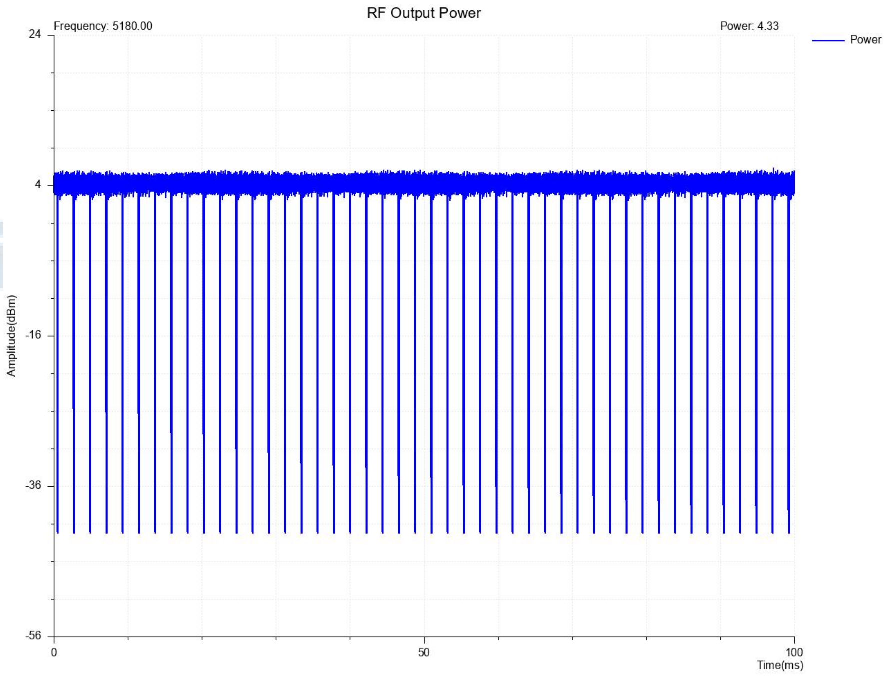
99%_Occupied_Bandwidth_NVNT_ANT1_802_11n(HT40)_5230


Keysight Spectrum Analyzer - Occupied BW
Center Freq 5.230000000 GHz
Center Freq: 5.230000000 GHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 40 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:54:25 PM Jul 24, 2024
Ref Offset 5.99 dB
Ref 8.98 dBm
10 dB/div
Log
Center 5.23 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 80 MHz
#Sweep 2 s
Occupied Bandwidth
35.966 MHz
Total Power 7.78 dBm
Transmit Freq Error 182.75 kHz
% of OBW Power 99.00 %
x dB Bandwidth 37.69 MHz
x dB -26.00 dB
Frequency
Center Freq
5.230000000 GHz
CF Step
8.000000 MHz
Auto Man
Freq Offset
0 Hz
Align Now All required

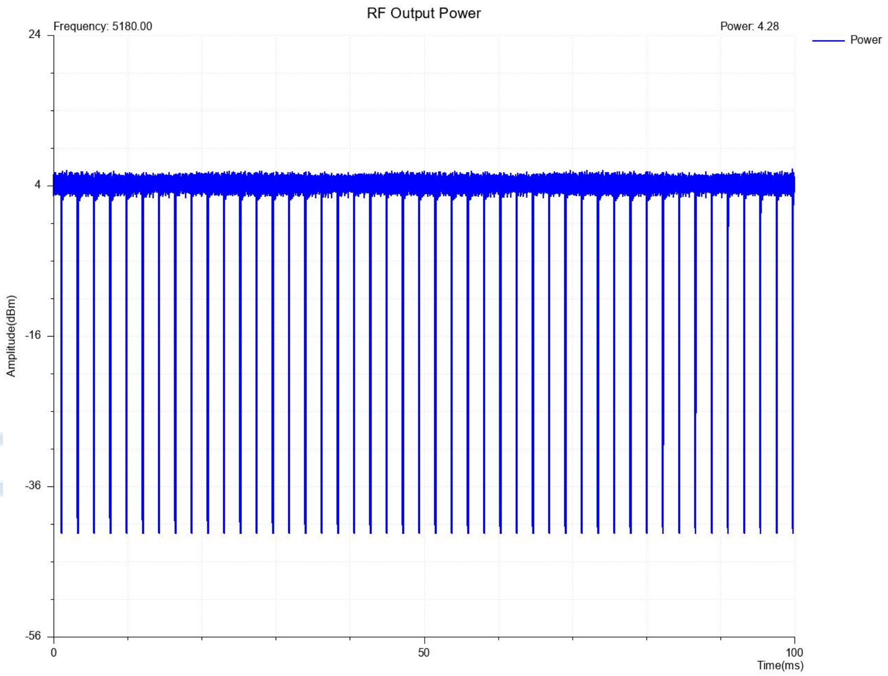
3. RF output power

Condition	Antenna	Mode	Frequency (MHz)	ANT_Gain(dBi)	Max Burst RMS Power (dBm)	Burst Number	Max EIRP (dBm)	Limit (dBm)	Result
NVNT	ANT1	802.11a	5180.00	0.00	4.33	47	4.33	23	Pass
LVLT	ANT1	802.11a	5180.00	0.00	4.28	47	4.28	23	Pass
LVHT	ANT1	802.11a	5180.00	0.00	4.24	47	4.24	23	Pass
HVLT	ANT1	802.11a	5180.00	0.00	4.19	46	4.19	23	Pass
HVHT	ANT1	802.11a	5180.00	0.00	4.16	47	4.16	23	Pass
NVNT	ANT1	802.11a	5200.00	0.00	4.60	46	4.60	23	Pass
LVLT	ANT1	802.11a	5200.00	0.00	4.56	47	4.56	23	Pass
LVHT	ANT1	802.11a	5200.00	0.00	4.56	47	4.56	23	Pass
HVLT	ANT1	802.11a	5200.00	0.00	4.55	46	4.55	23	Pass
HVHT	ANT1	802.11a	5200.00	0.00	4.55	46	4.55	23	Pass
NVNT	ANT1	802.11a	5240.00	0.00	4.67	46	4.67	23	Pass
LVLT	ANT1	802.11a	5240.00	0.00	4.67	47	4.67	23	Pass
LVHT	ANT1	802.11a	5240.00	0.00	4.68	47	4.68	23	Pass
HVLT	ANT1	802.11a	5240.00	0.00	4.66	47	4.66	23	Pass
HVHT	ANT1	802.11a	5240.00	0.00	4.66	47	4.66	23	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	0.00	3.49	50	3.49	23	Pass
LVLT	ANT1	802.11n(HT20)	5180.00	0.00	3.44	50	3.44	23	Pass
LVHT	ANT1	802.11n(HT20)	5180.00	0.00	3.46	50	3.46	23	Pass
HVLT	ANT1	802.11n(HT20)	5180.00	0.00	3.45	49	3.45	23	Pass
HVHT	ANT1	802.11n(HT20)	5180.00	0.00	3.45	50	3.45	23	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	0.00	4.47	49	4.47	23	Pass
LVLT	ANT1	802.11n(HT20)	5200.00	0.00	4.47	50	4.47	23	Pass
LVHT	ANT1	802.11n(HT20)	5200.00	0.00	4.45	50	4.45	23	Pass
HVLT	ANT1	802.11n(HT20)	5200.00	0.00	4.47	49	4.47	23	Pass
HVHT	ANT1	802.11n(HT20)	5200.00	0.00	4.46	50	4.46	23	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	0.00	4.04	50	4.04	23	Pass
LVLT	ANT1	802.11n(HT20)	5240.00	0.00	4.01	49	4.01	23	Pass
LVHT	ANT1	802.11n(HT20)	5240.00	0.00	4.01	49	4.01	23	Pass
HVLT	ANT1	802.11n(HT20)	5240.00	0.00	4.01	50	4.01	23	Pass
HVHT	ANT1	802.11n(HT20)	5240.00	0.00	4.00	50	4.00	23	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	0.00	4.00	94	4.00	23	Pass
LVLT	ANT1	802.11n(HT40)	5190.00	0.00	3.97	94	3.97	23	Pass
LVHT	ANT1	802.11n(HT40)	5190.00	0.00	3.94	94	3.94	23	Pass
HVLT	ANT1	802.11n(HT40)	5190.00	0.00	3.93	94	3.93	23	Pass
HVHT	ANT1	802.11n(HT40)	5190.00	0.00	3.91	94	3.91	23	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	0.00	4.11	94	4.11	23	Pass
LVLT	ANT1	802.11n(HT40)	5230.00	0.00	4.12	94	4.12	23	Pass
LVHT	ANT1	802.11n(HT40)	5230.00	0.00	4.12	94	4.12	23	Pass
HVLT	ANT1	802.11n(HT40)	5230.00	0.00	4.12	94	4.12	23	Pass
HVHT	ANT1	802.11n(HT40)	5230.00	0.00	4.10	94	4.10	23	Pass

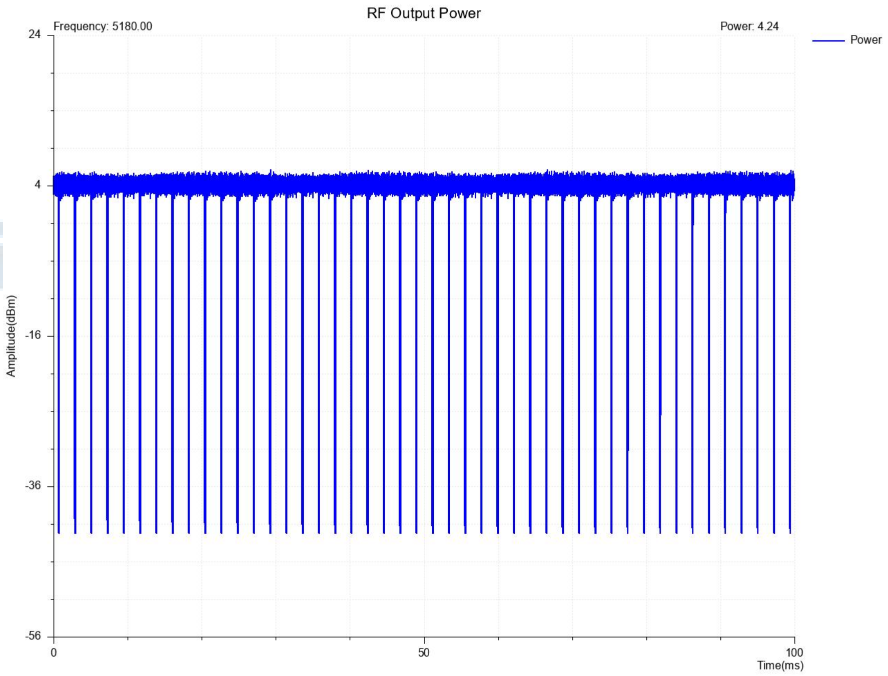
NVNT_ANT1_802_11a_Power_5180



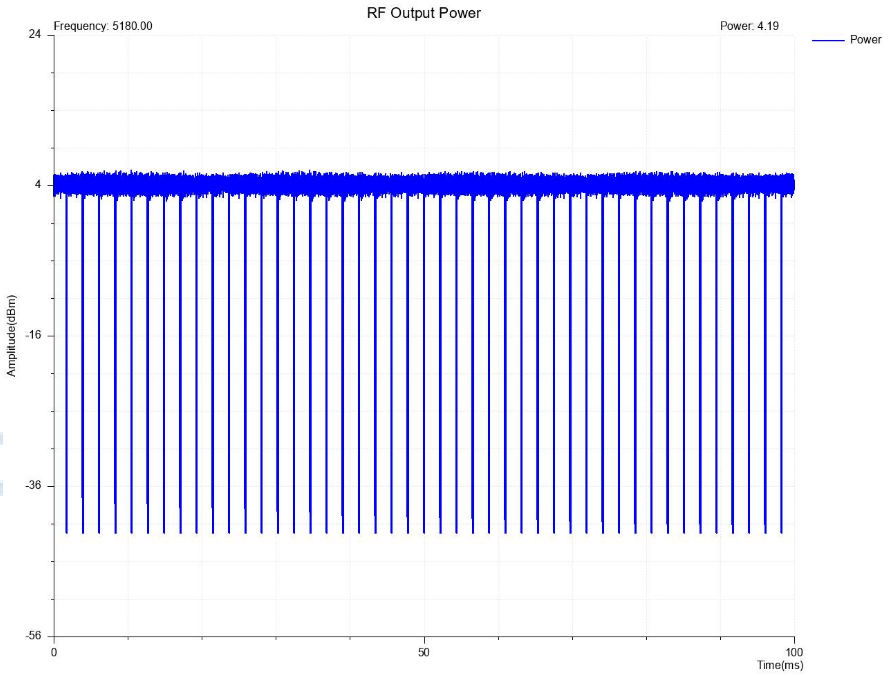
LVLT_ANT1_802_11a_Power_5180



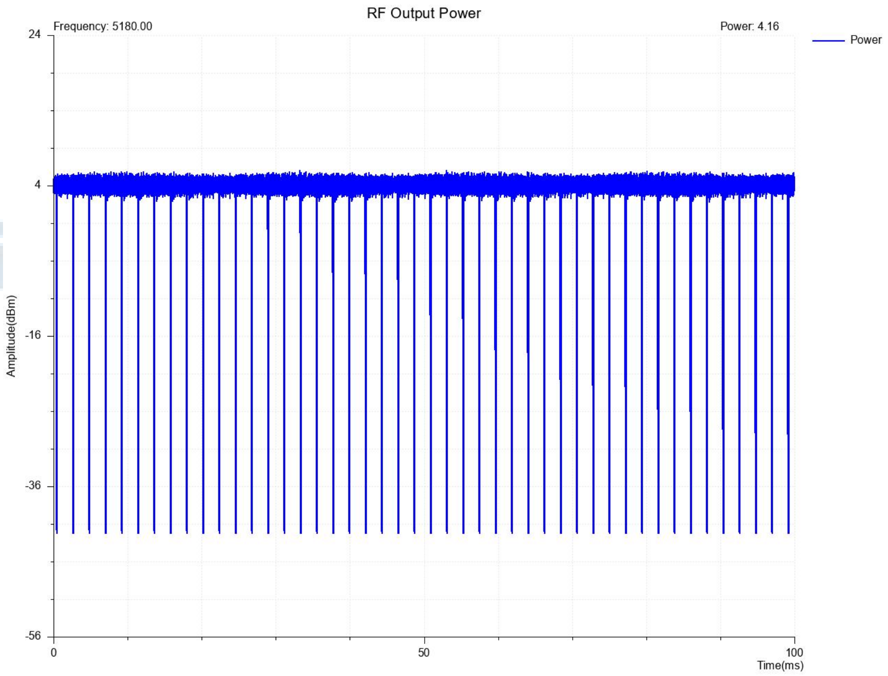
LVHT_ANT1_802_11a_Power_5180



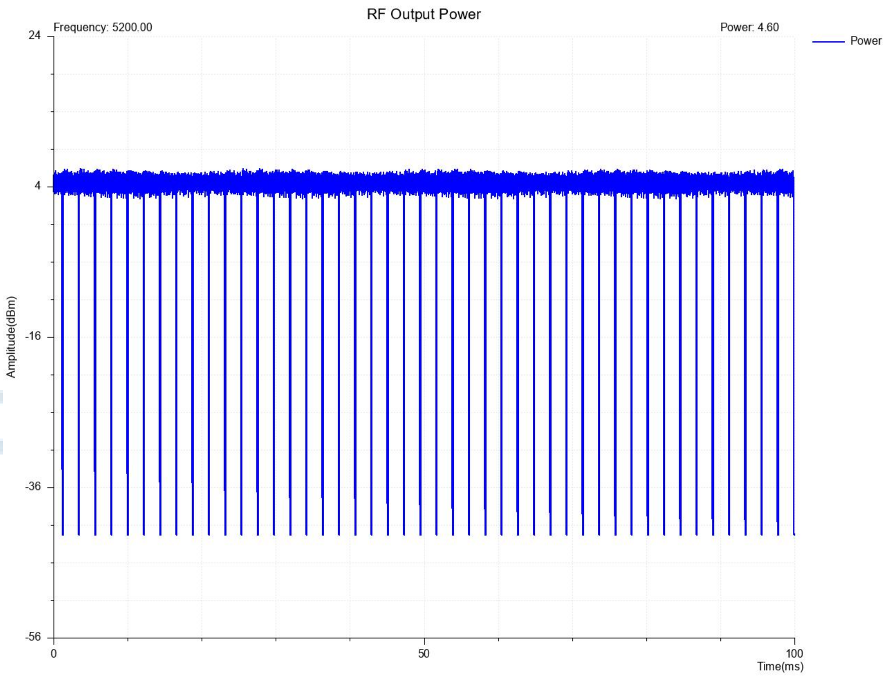
HVLT_ANT1_802_11a_Power_5180



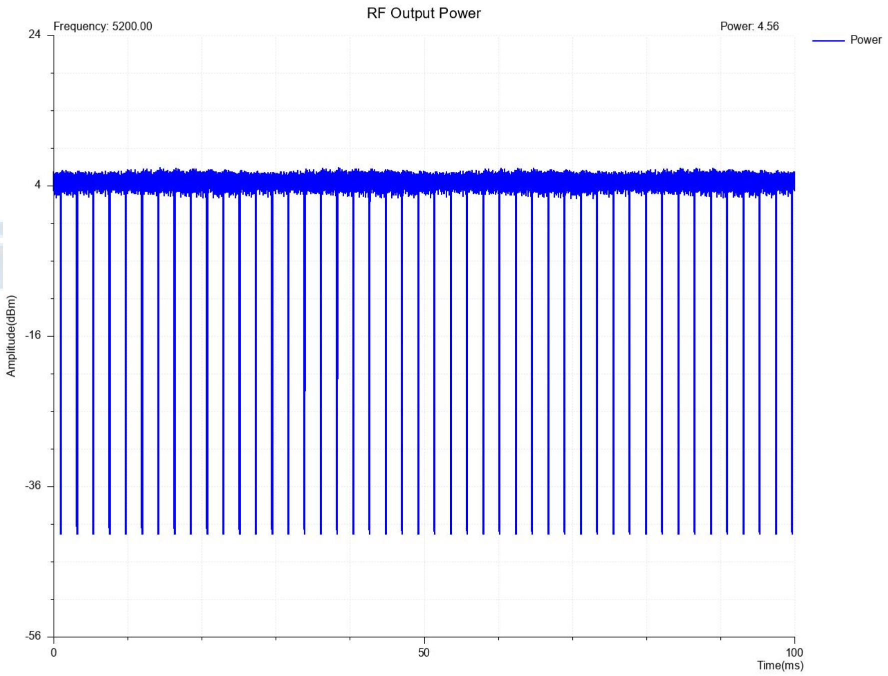
HVHT_ANT1_802_11a_Power_5180



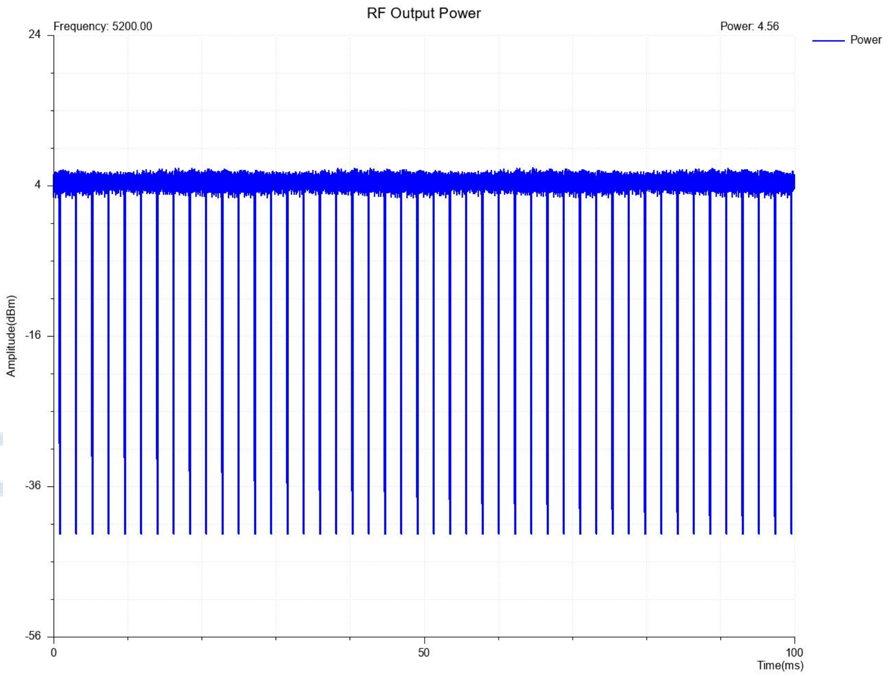
NVNT_ANT1_802_11a_Power_5200



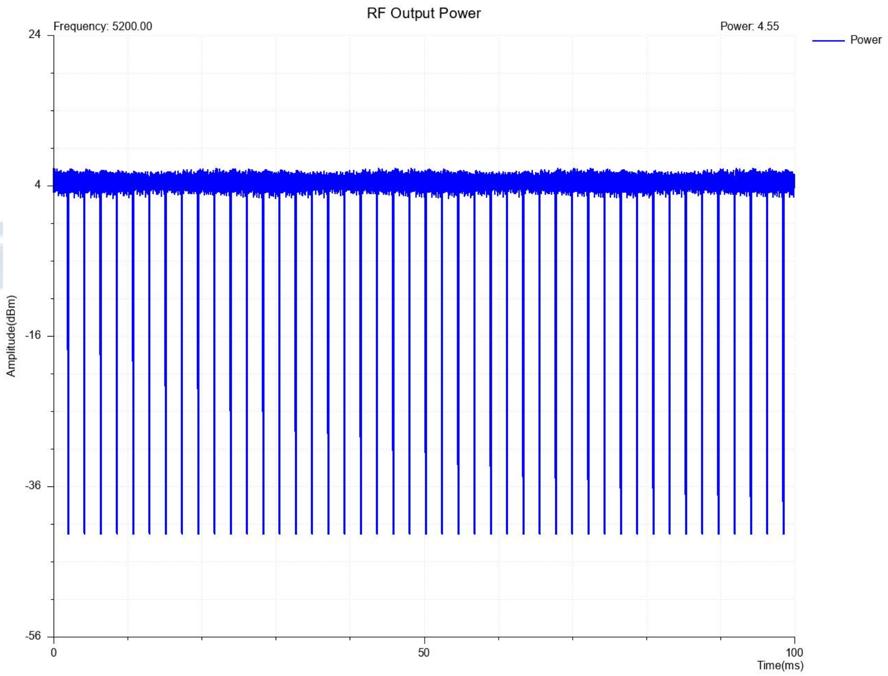
LVLT_ANT1_802_11a_Power_5200



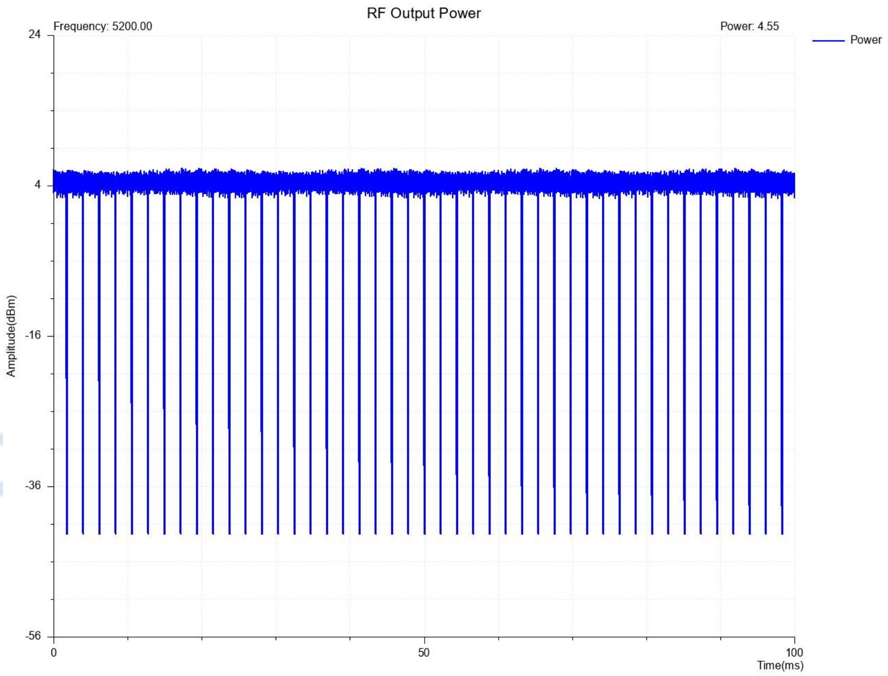
LVHT_ANT1_802_11a_Power_5200



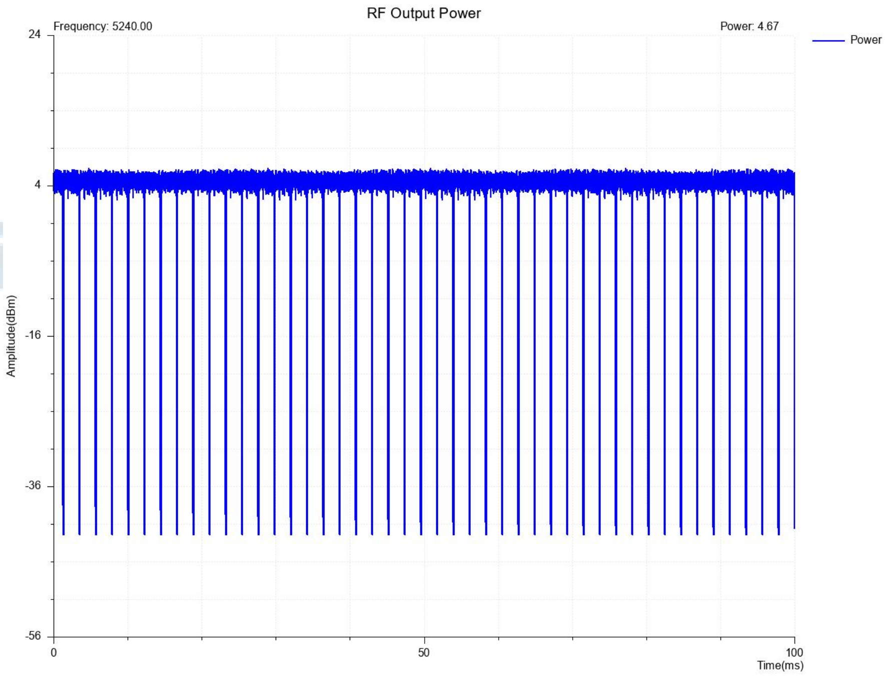
HVLT_ANT1_802_11a_Power_5200



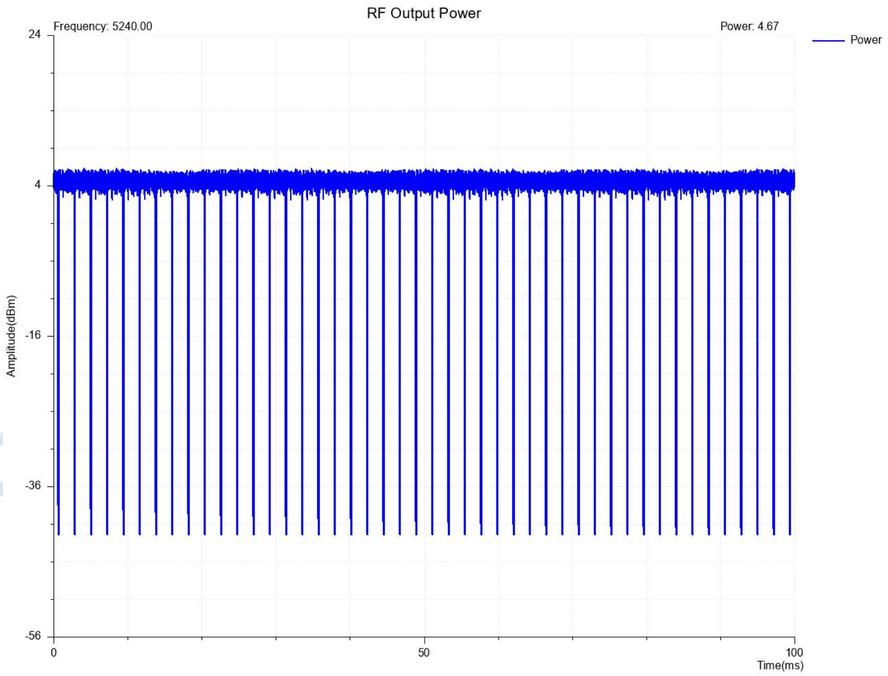
HVHT_ANT1_802_11a_Power_5200



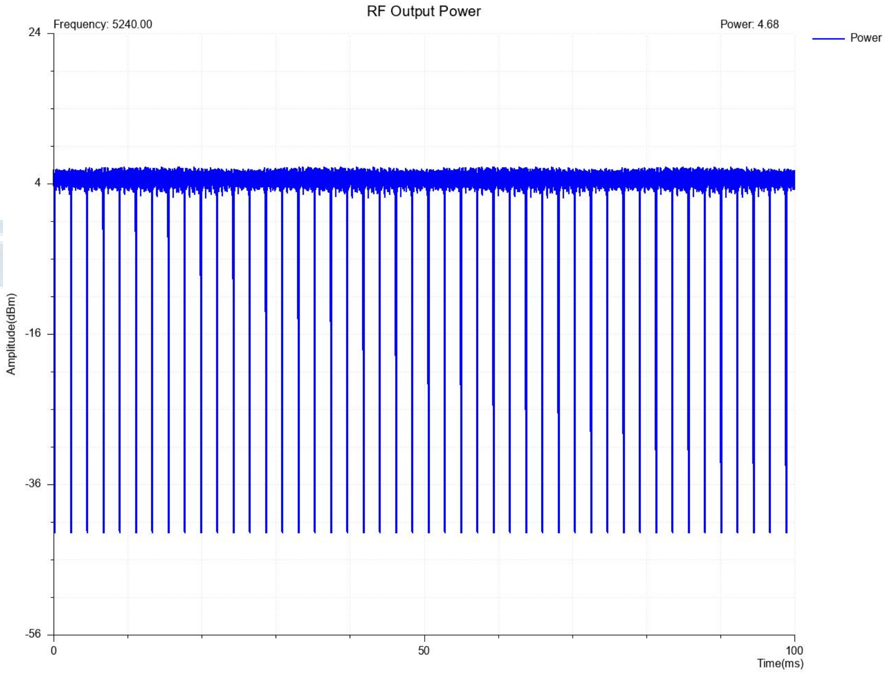
NVNT_ANT1_802_11a_Power_5240



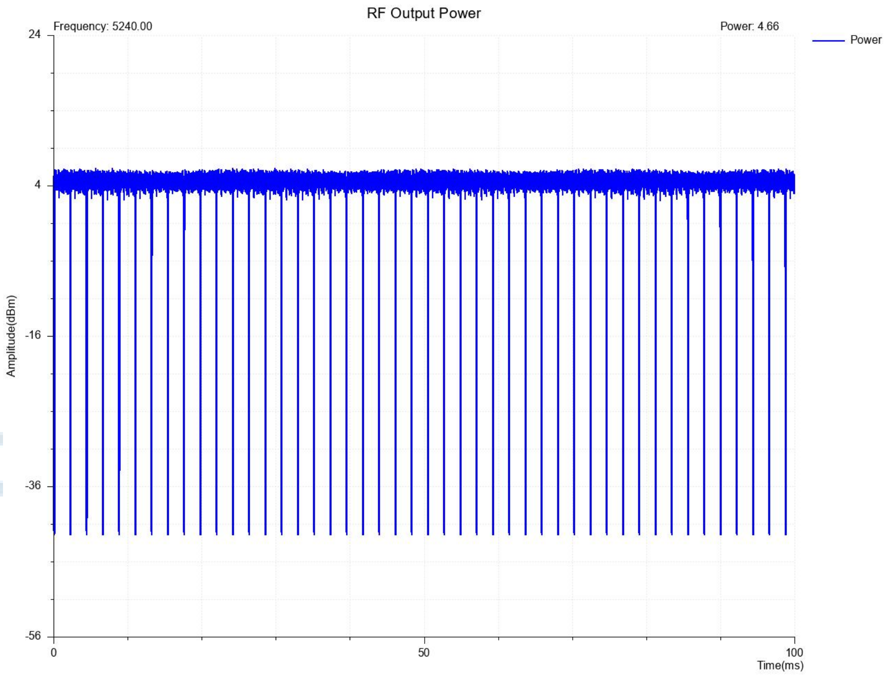
LVLT_ANT1_802_11a_Power_5240



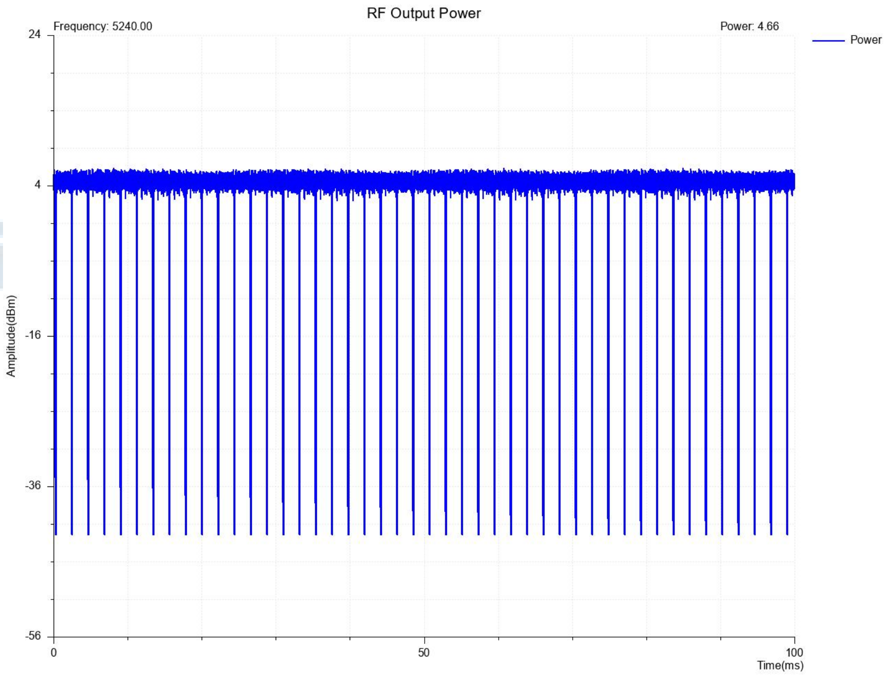
LVHT_ANT1_802_11a_Power_5240



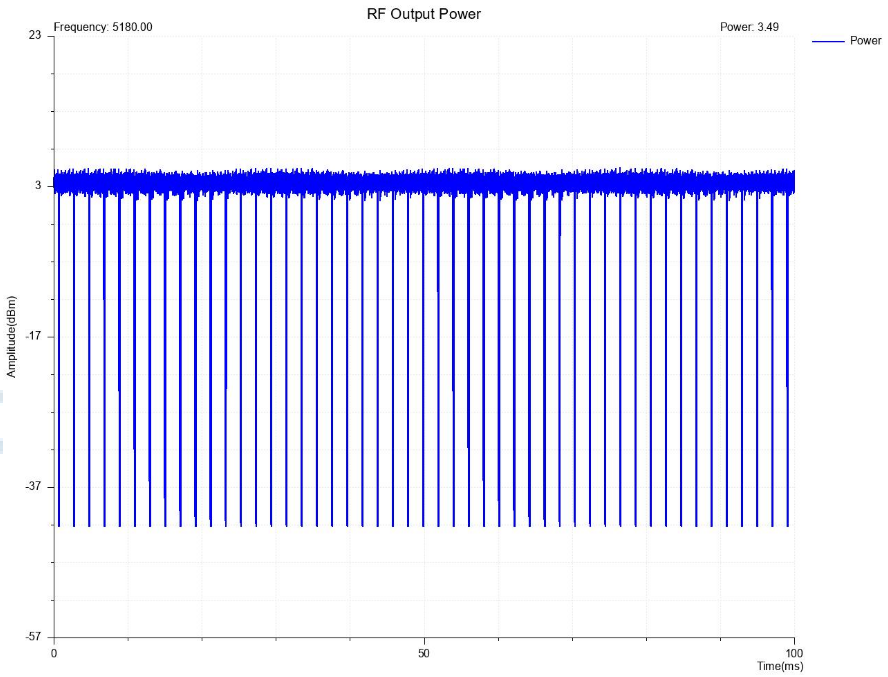
HVLT_ANT1_802_11a_Power_5240



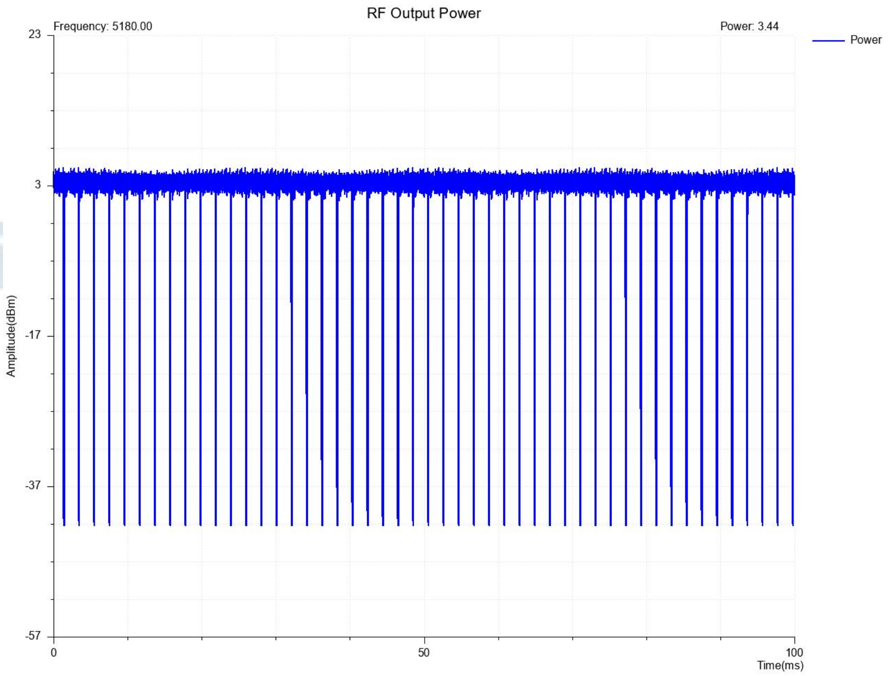
HVHT_ANT1_802_11a_Power_5240



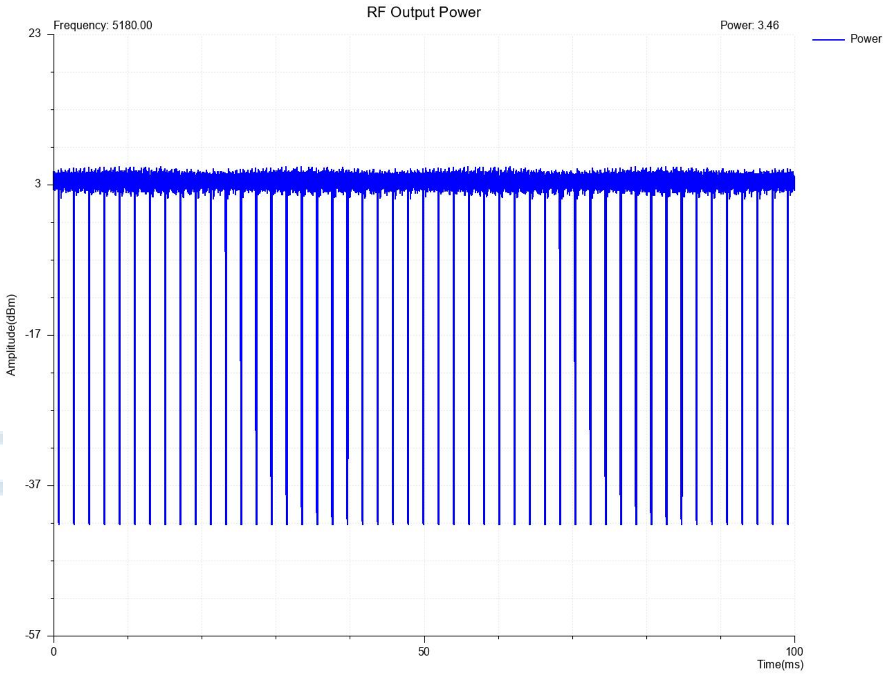
NVNT_ANT1_802_11n(HT20)_Power_5180



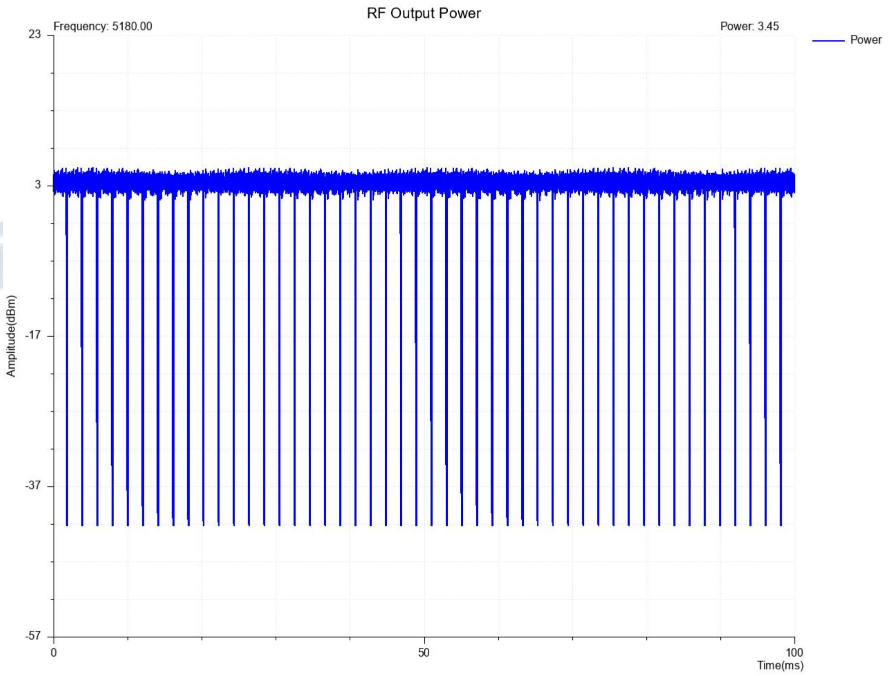
LVLT_ANT1_802_11n(HT20)_Power_5180



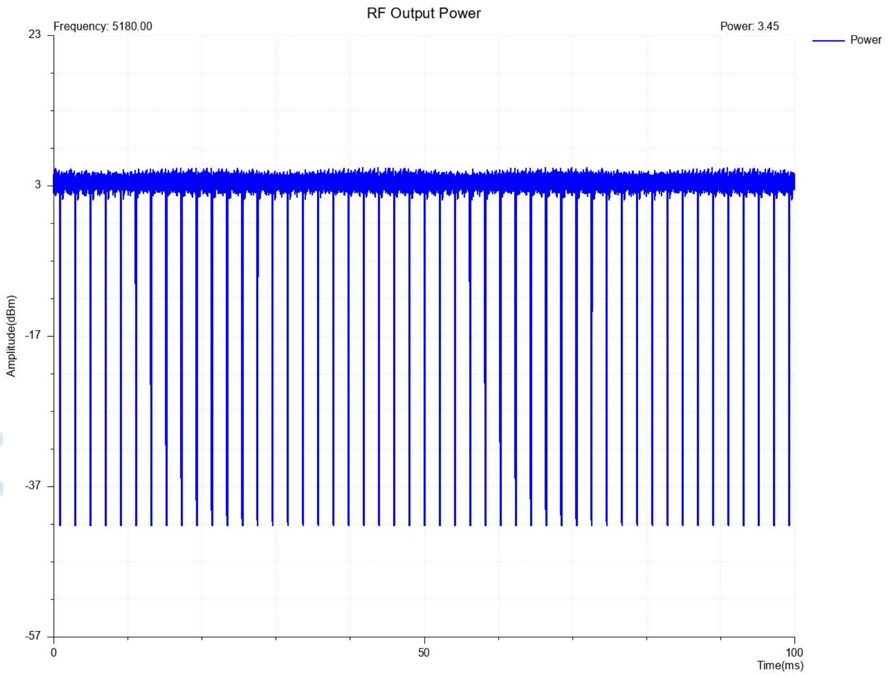
LVHT_ANT1_802_11n(HT20)_Power_5180



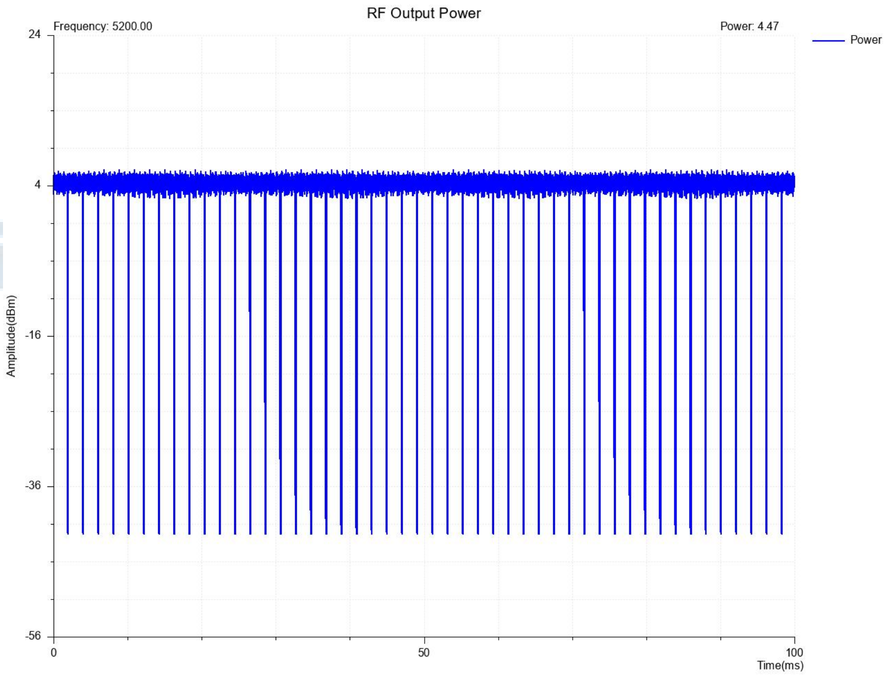
HVLT_ANT1_802_11n(HT20)_Power_5180



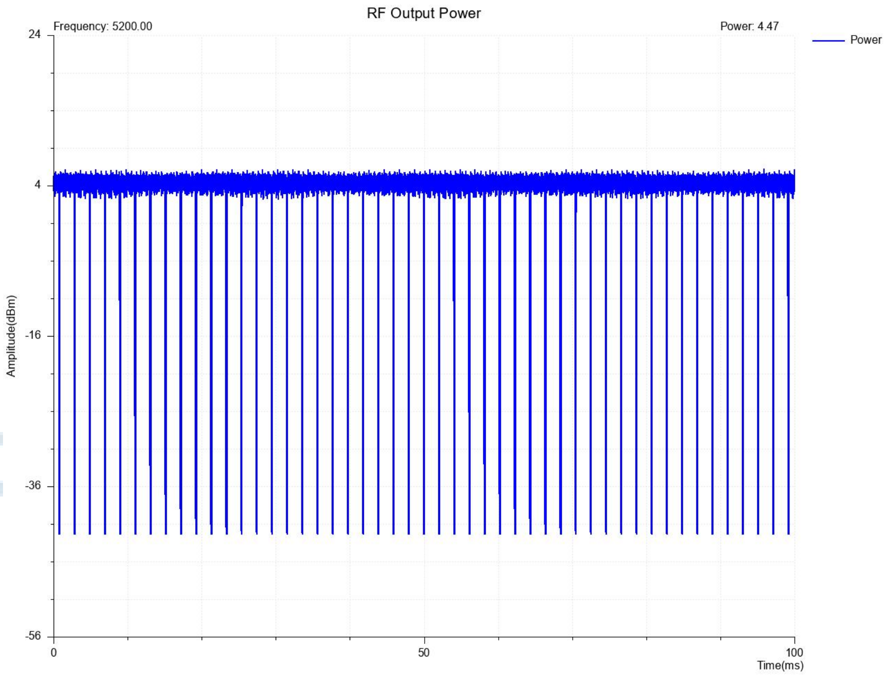
HVHT_ANT1_802_11n(HT20)_Power_5180



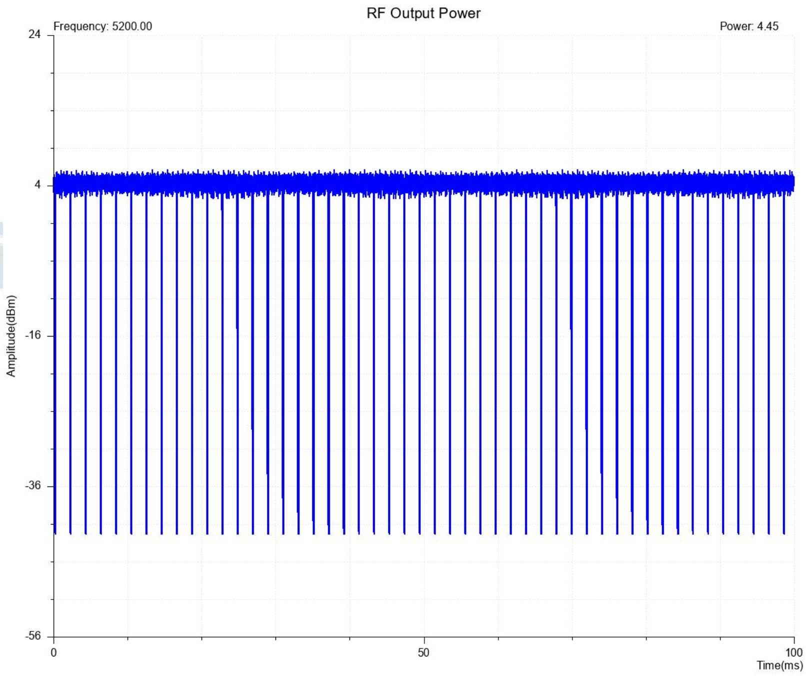
NVNT_ANT1_802_11n(HT20)_Power_5200



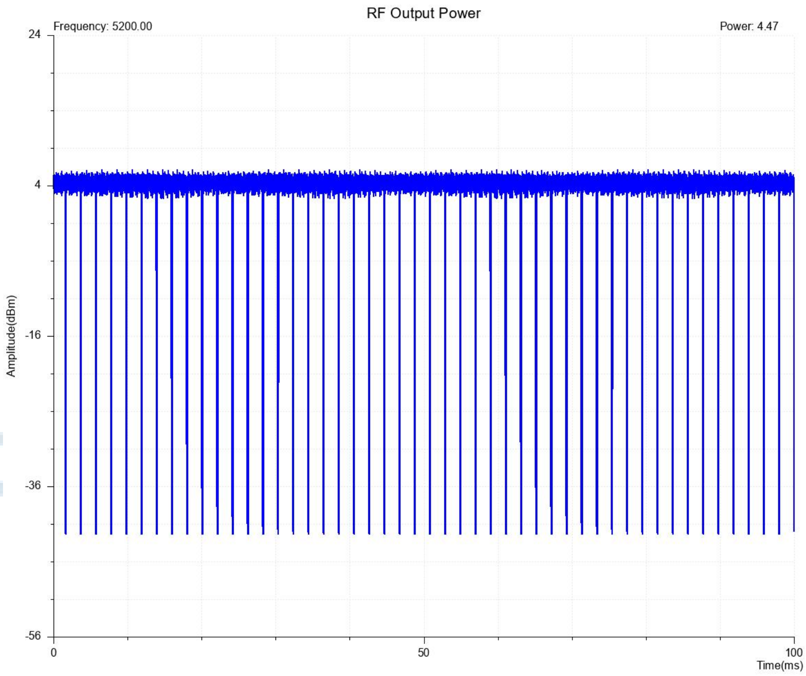
LVLT_ANT1_802_11n(HT20)_Power_5200



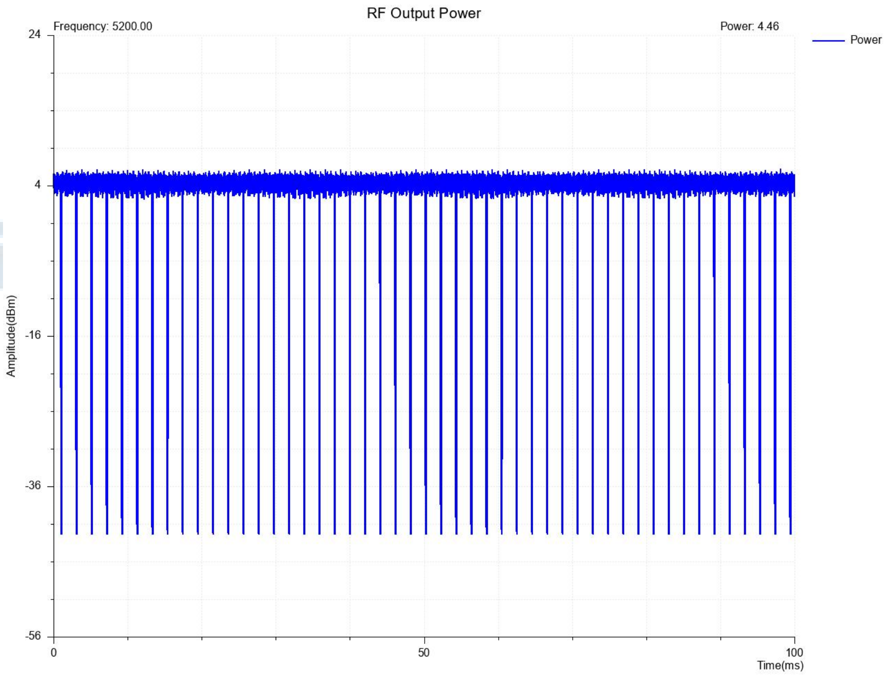
LVHT_ANT1_802_11n(HT20)_Power_5200



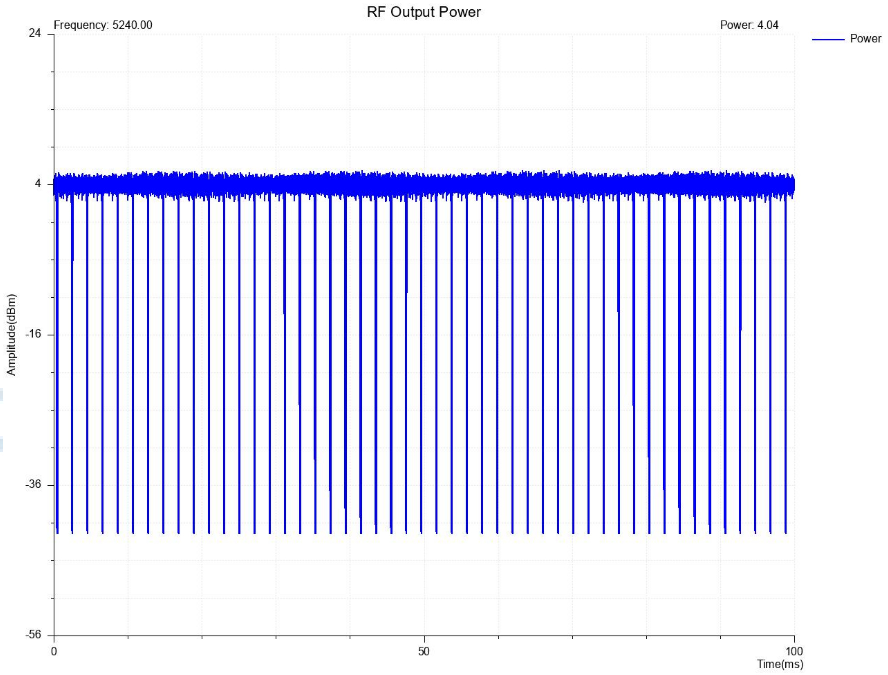
HVLT_ANT1_802_11n(HT20)_Power_5200



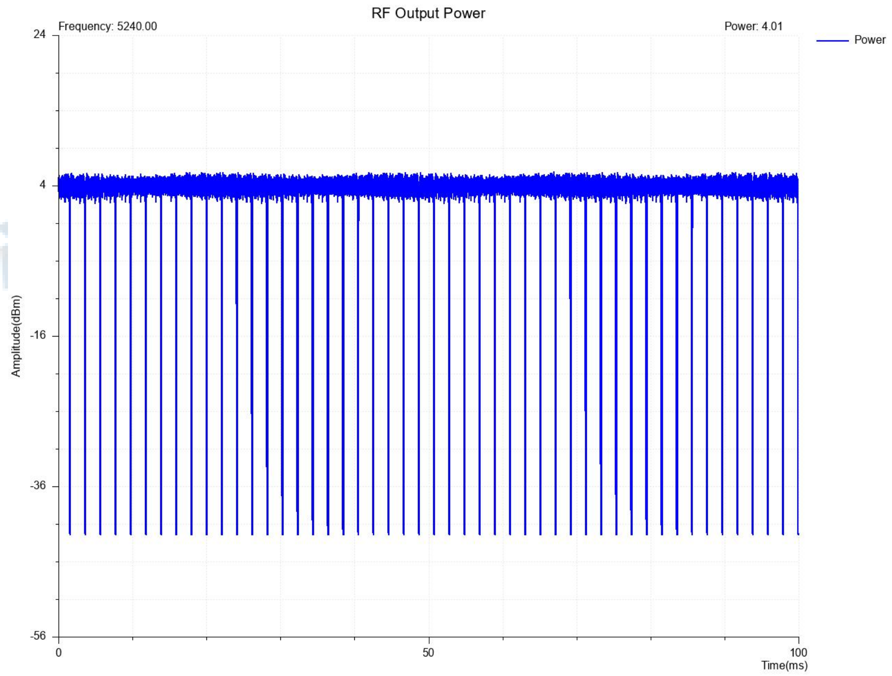
HVHT_ANT1_802_11n(HT20)_Power_5200



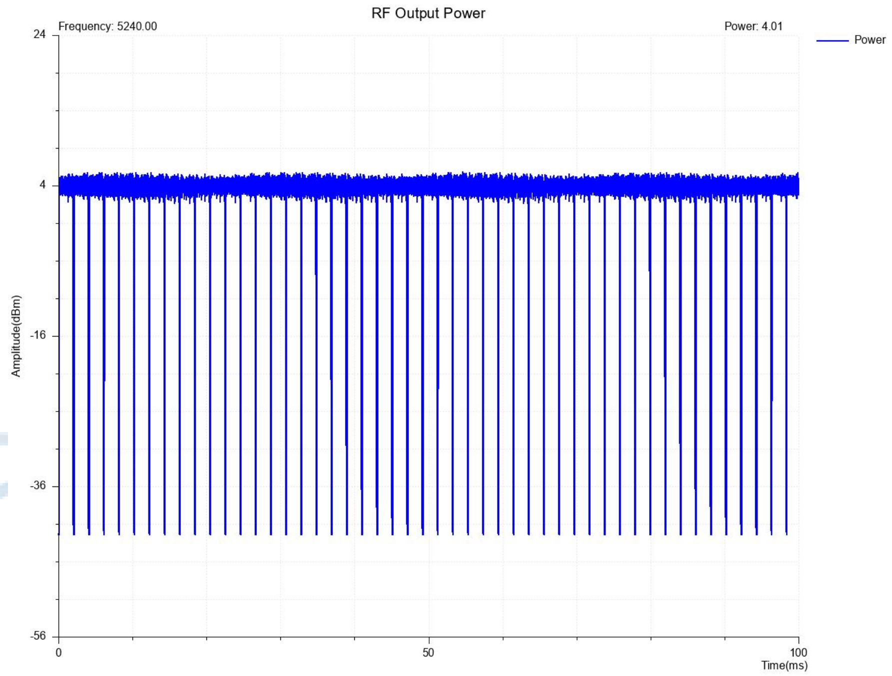
NVNT_ANT1_802_11n(HT20)_Power_5240



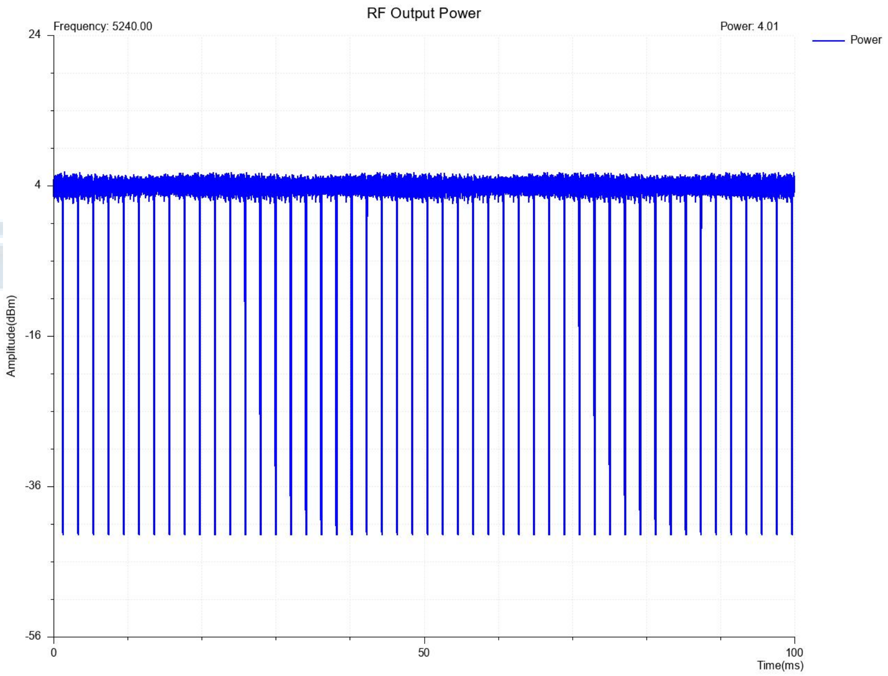
LVLT_ANT1_802_11n(HT20)_Power_5240



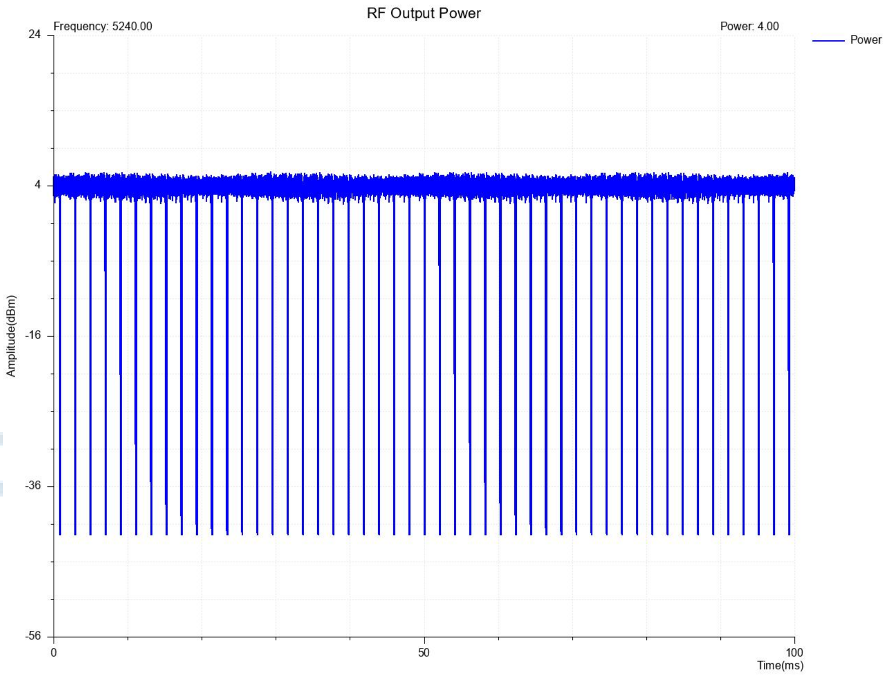
LVHT_ANT1_802_11n(HT20)_Power_5240



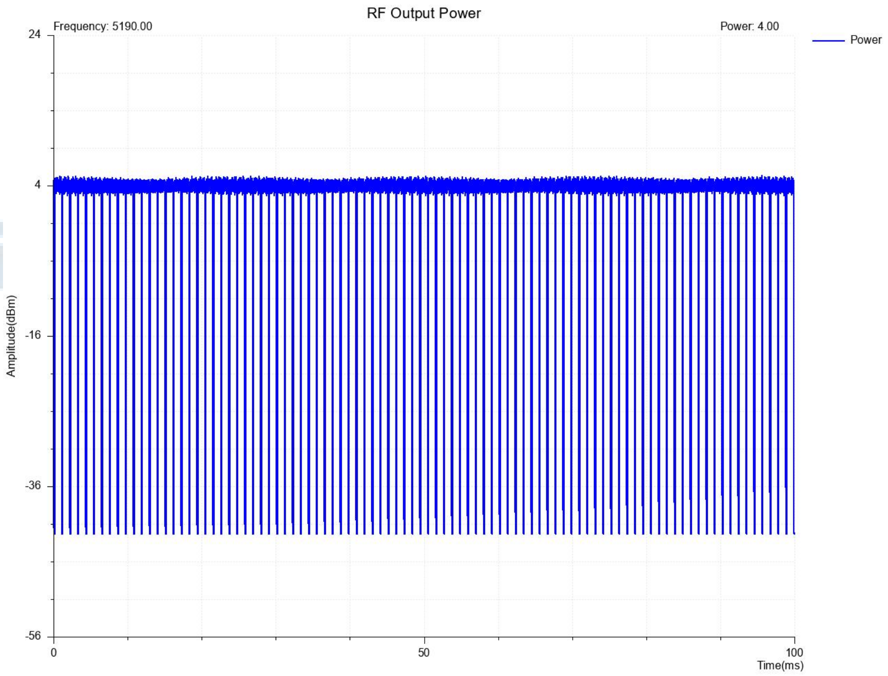
HVLT_ANT1_802_11n(HT20)_Power_5240



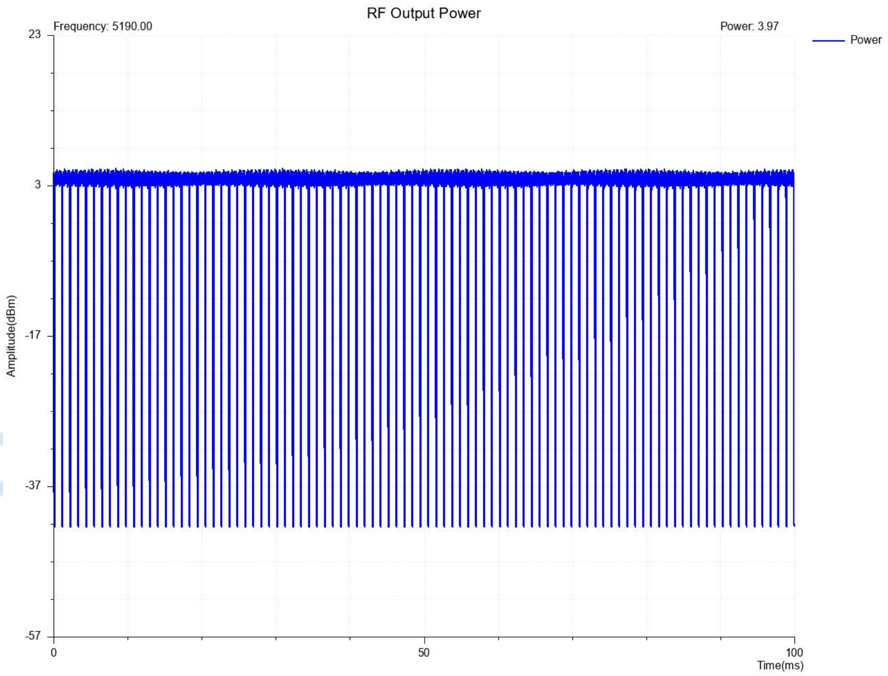
HVHT_ANT1_802_11n(HT20)_Power_5240



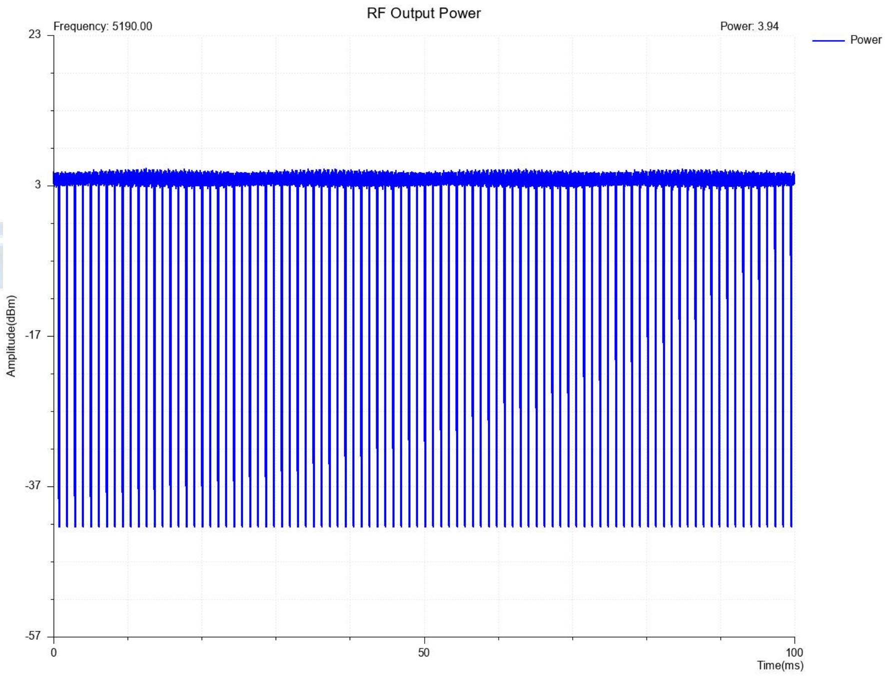
NVNT_ANT1_802_11n(HT40)_Power_5190



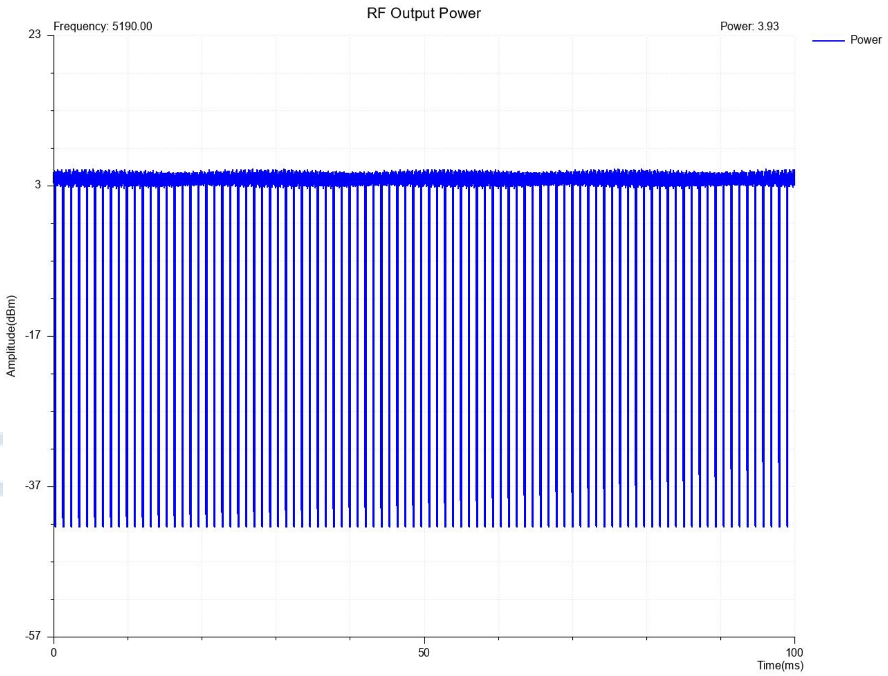
LVLT_ANT1_802_11n(HT40)_Power_5190



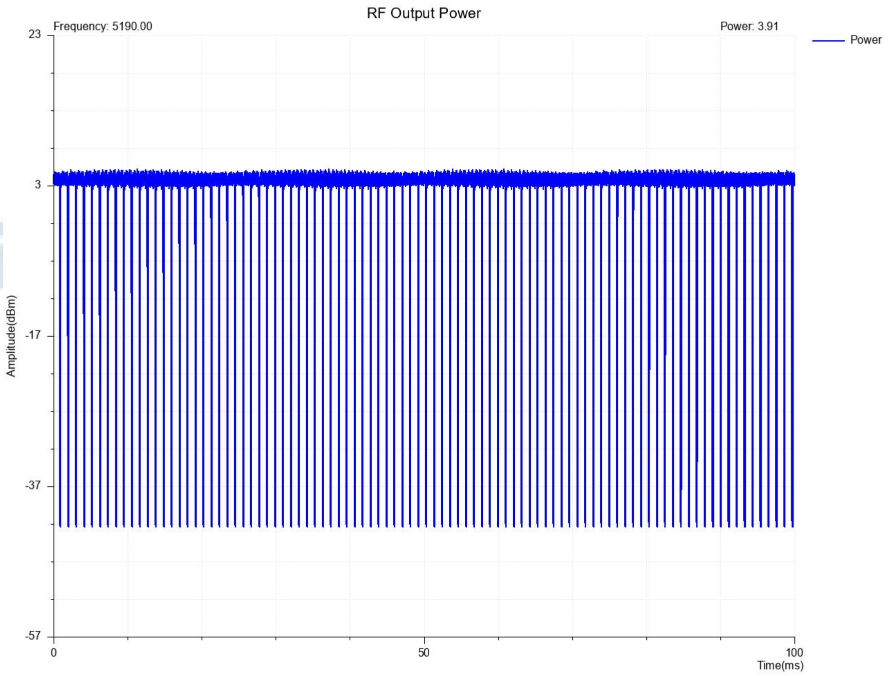
LVHT_ANT1_802_11n(HT40)_Power_5190



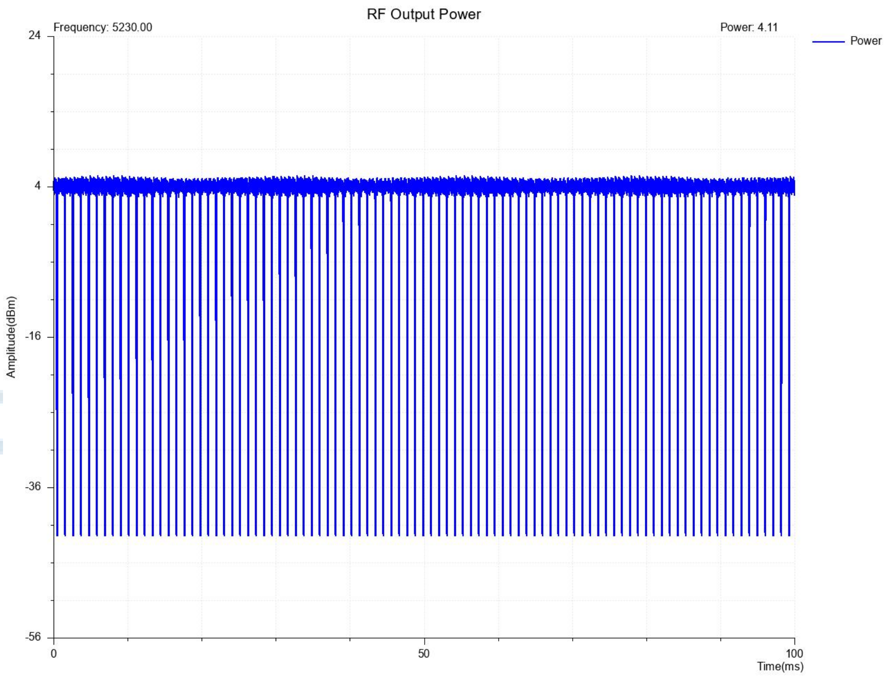
HVLT_ANT1_802_11n(HT40)_Power_5190



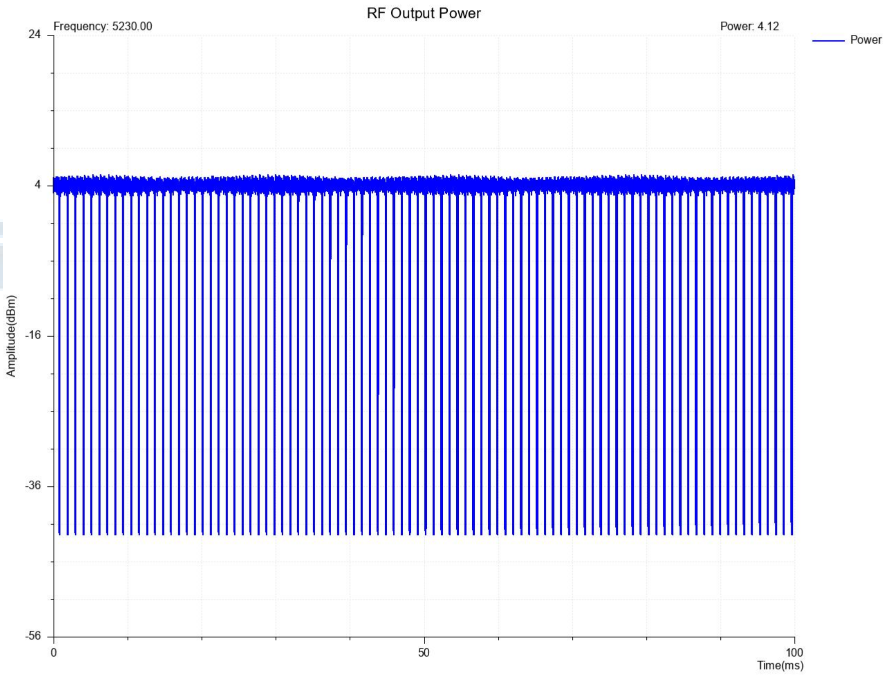
HVHT_ANT1_802_11n(HT40)_Power_5190



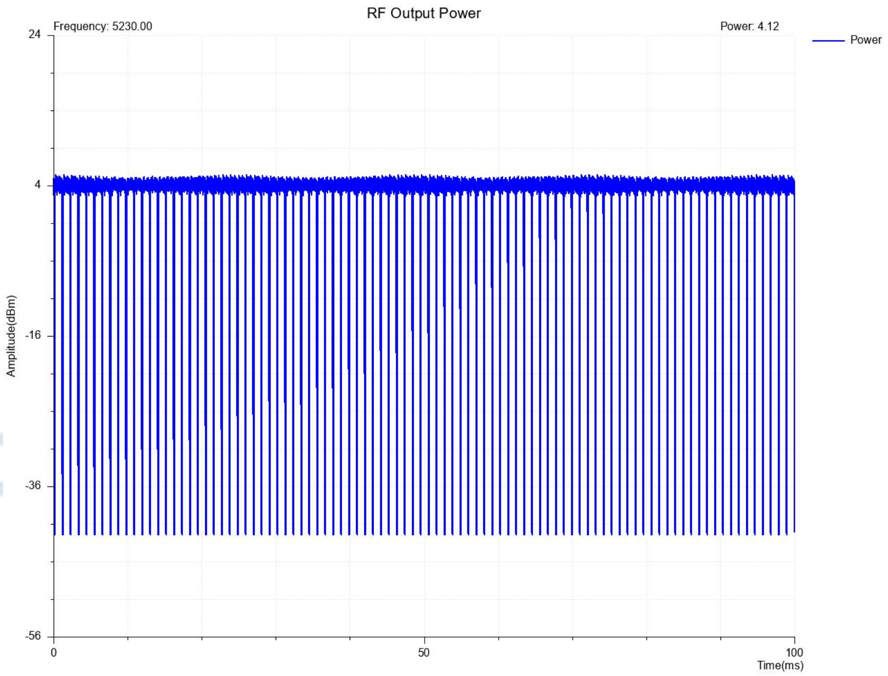
NVNT_ANT1_802_11n(HT40)_Power_5230



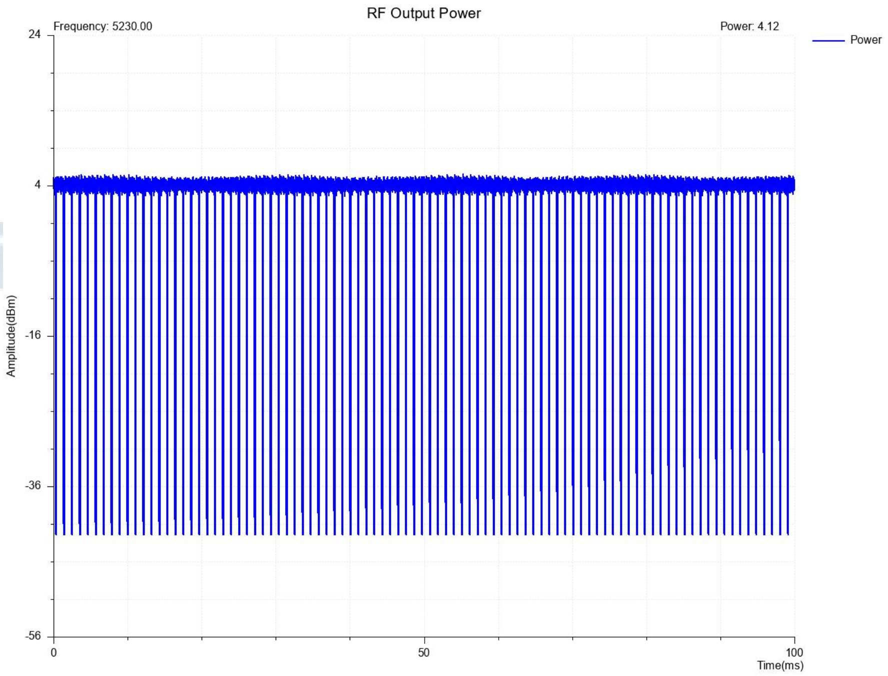
LVLT_ANT1_802_11n(HT40)_Power_5230



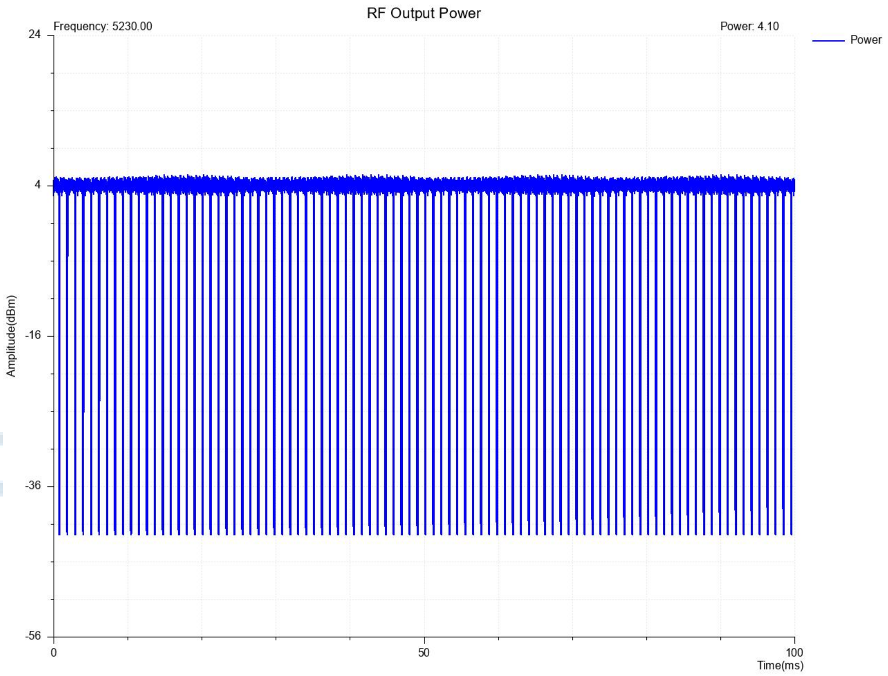
LVHT_ANT1_802_11n(HT40)_Power_5230



HVLT_ANT1_802_11n(HT40)_Power_5230



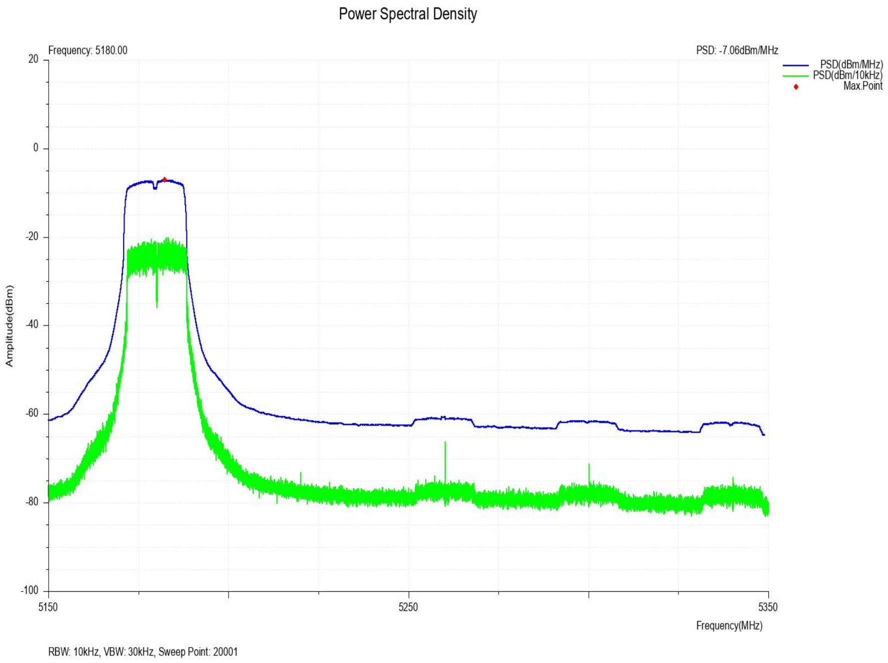
HVHT_ANT1_802_11n(HT40)_Power_5230



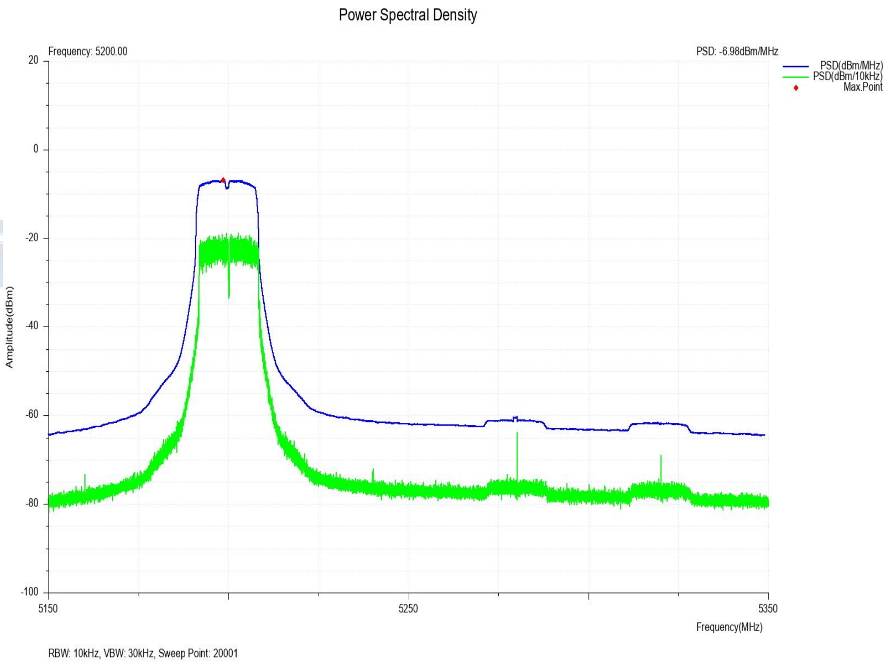
4. Power Spectral Density

Condition	Antenna	Mode	Frequency (MHz)	Max PSD(dBm/MHz)	Limit(dBm/MHz)	Result
NVNT	ANT1	802.11a	5180.00	-7.06	10	Pass
NVNT	ANT1	802.11a	5200.00	-6.98	10	Pass
NVNT	ANT1	802.11a	5240.00	-6.89	10	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	-8.25	10	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	-7.25	10	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	-7.71	10	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	-10.35	10	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	-10.54	10	Pass

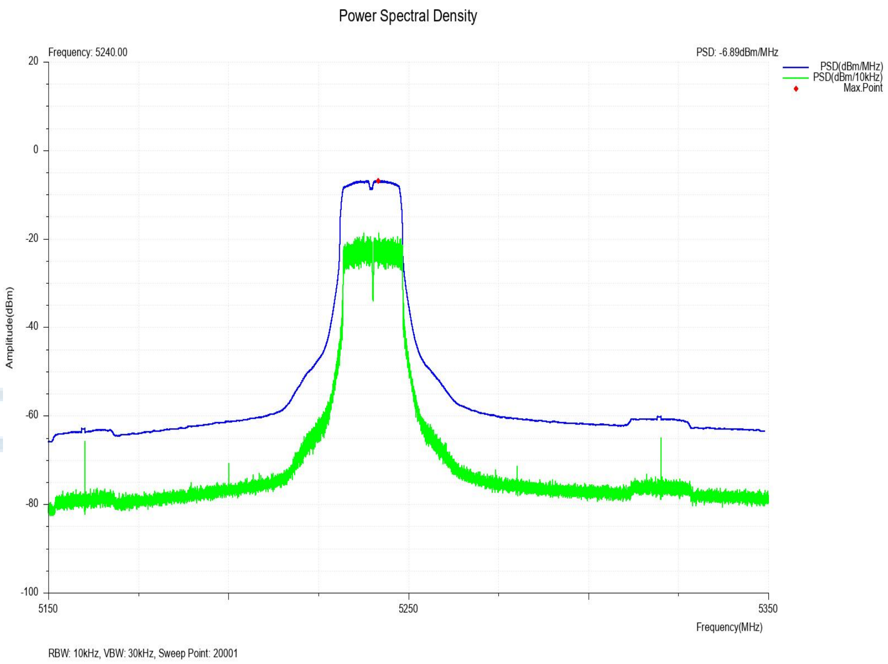
NVNT_ANT1_802_11a_Power_Spectral_Density_5180



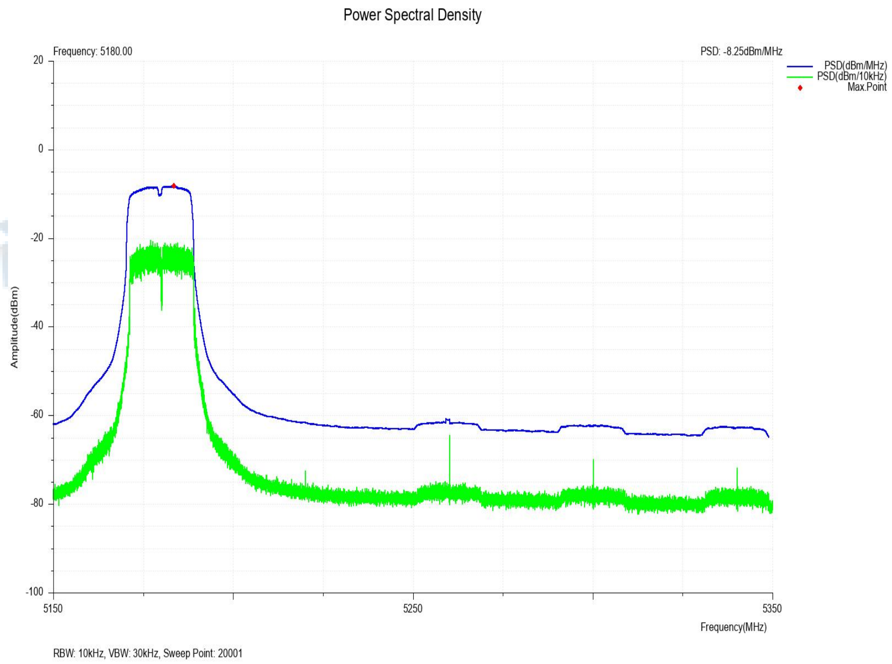
NVNT_ANT1_802_11a_Power_Spectral_Density_5200



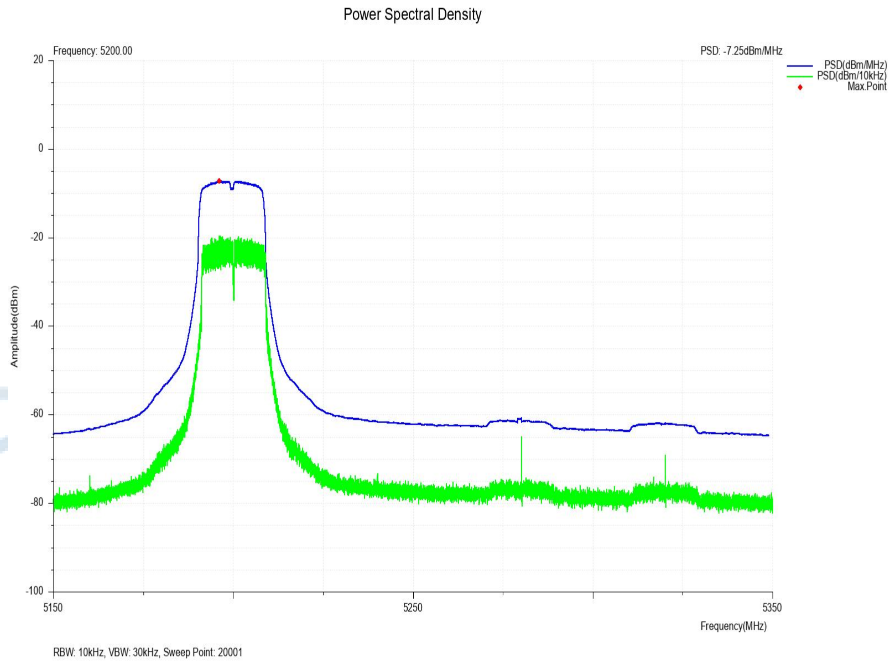
NVNT_ANT1_802_11a_Power_Spectral_Density_5240



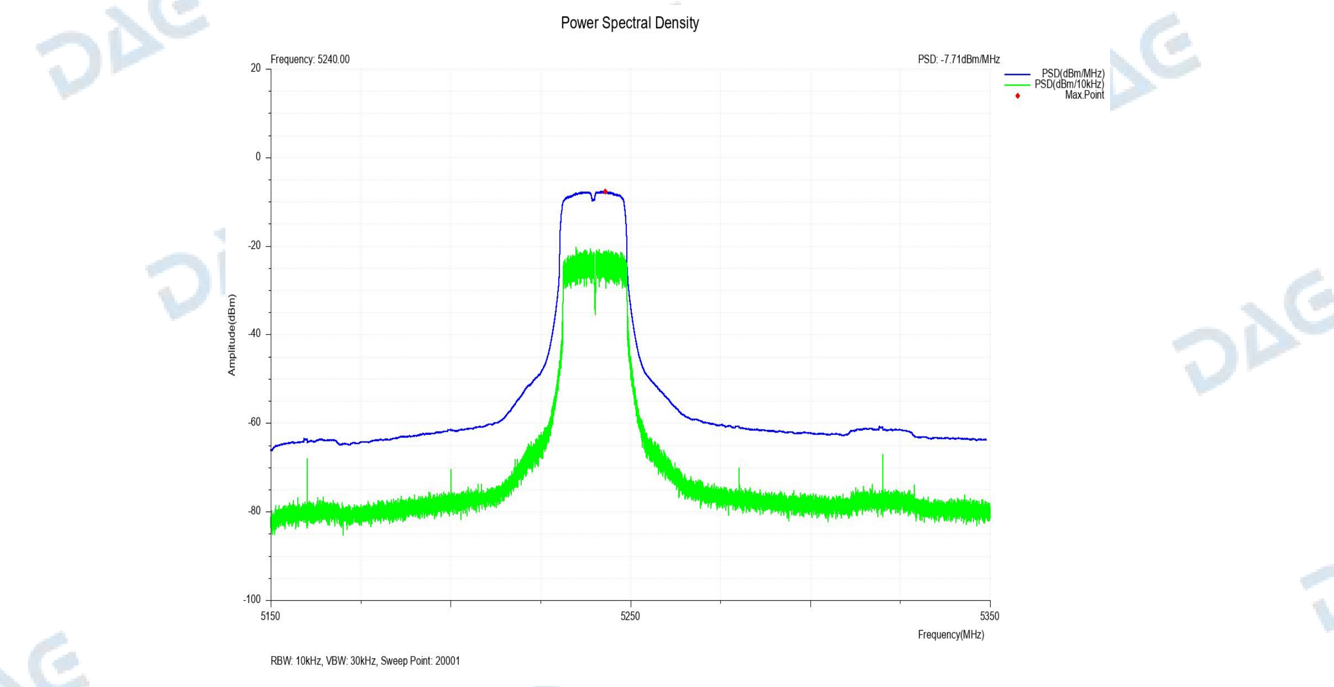
NVNT_ANT1_802_11n(HT20)_Power_Spectral_Density_5180



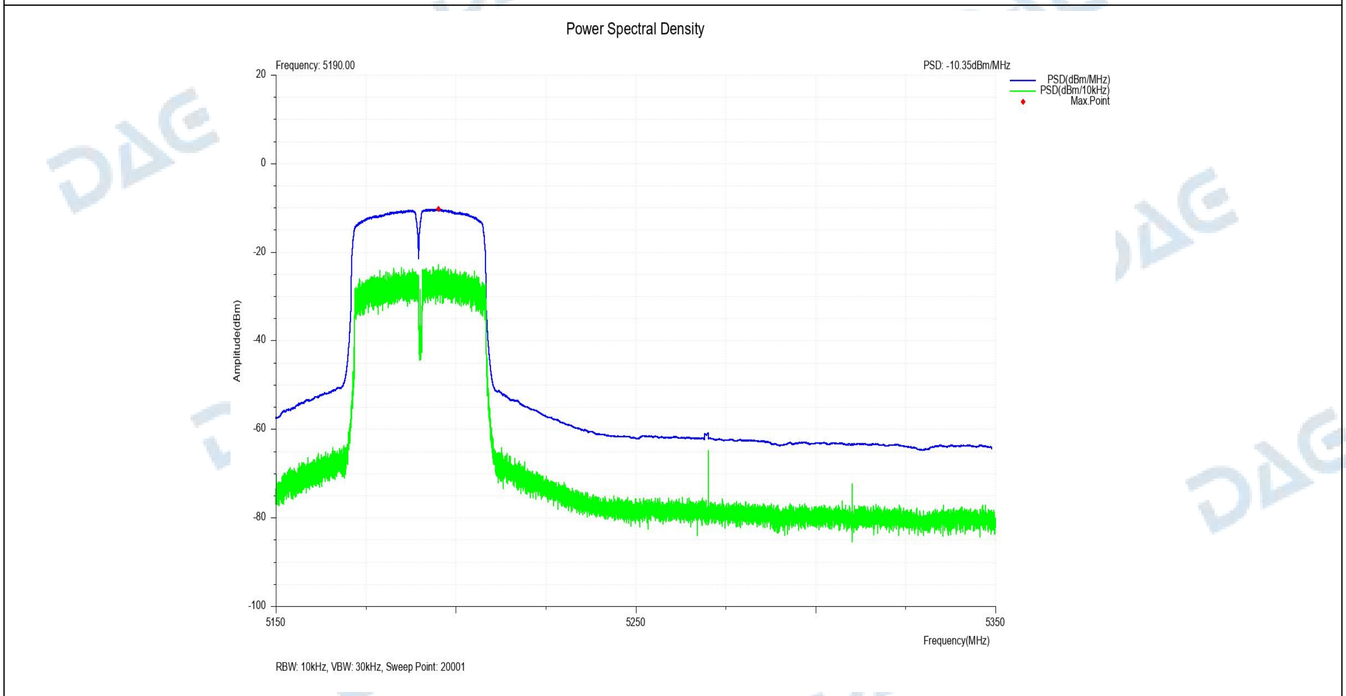
NVNT_ANT1_802_11n(HT20)_Power_Spectral_Density_5200



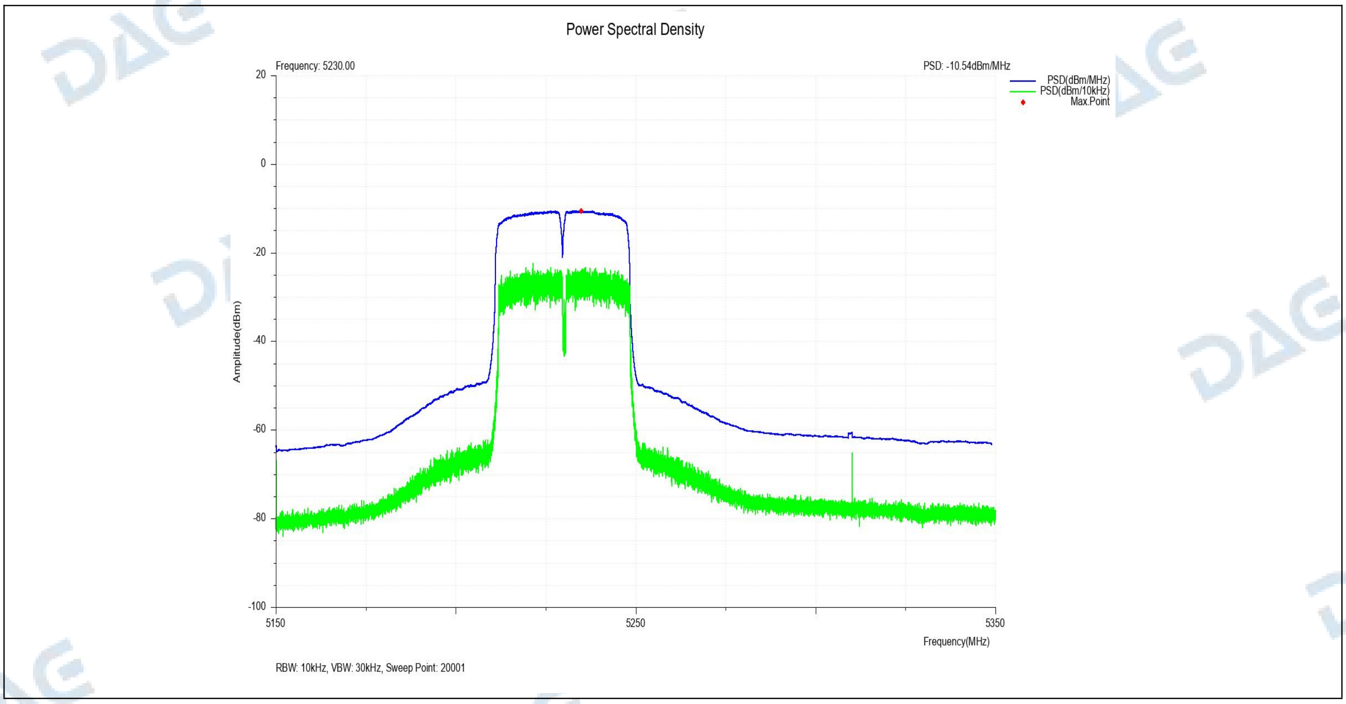
NVNT_ANT1_802_11n(HT20)_Power_Spectral_Density_5240



NVNT_ANT1_802_11n(HT40)_Power_Spectral_Density_5190



NVNT_ANT1_802_11n(HT40)_Power_Spectral_Density_5230

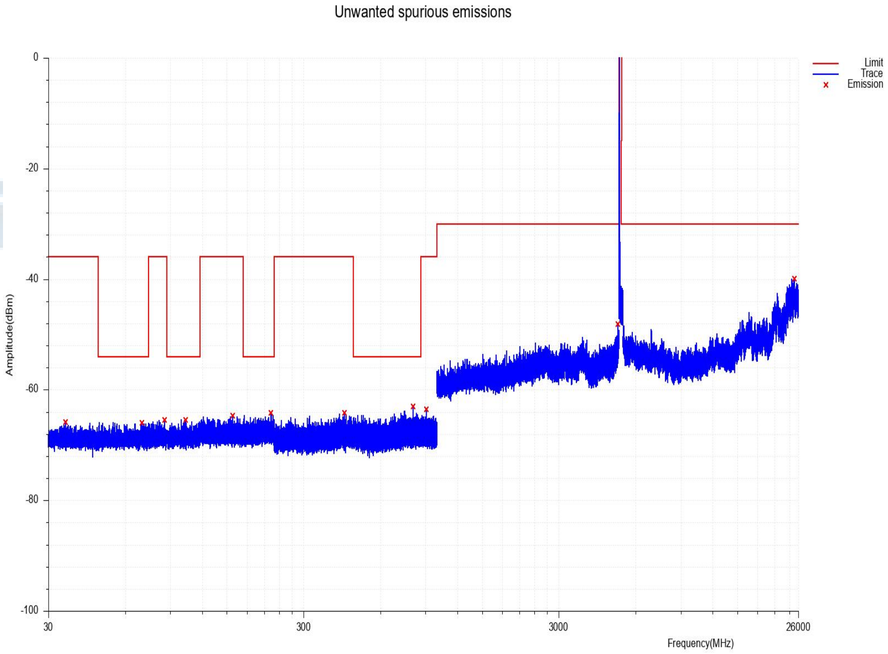

Power Spectral Density
Frequency: 5230.00
PSD: -10.54dBm/MHz
PSD(dBm/MHz)
PSD(dBm/10kHz)
Max.Point
Amplitude(dBm)
20
0
-20
-40
-60
-80
-100
5150
5250
5350
Frequency(MHz)
RBW: 10kHz, VBW: 30kHz, Sweep Point: 20001

5. Transmitter emissions outside bands

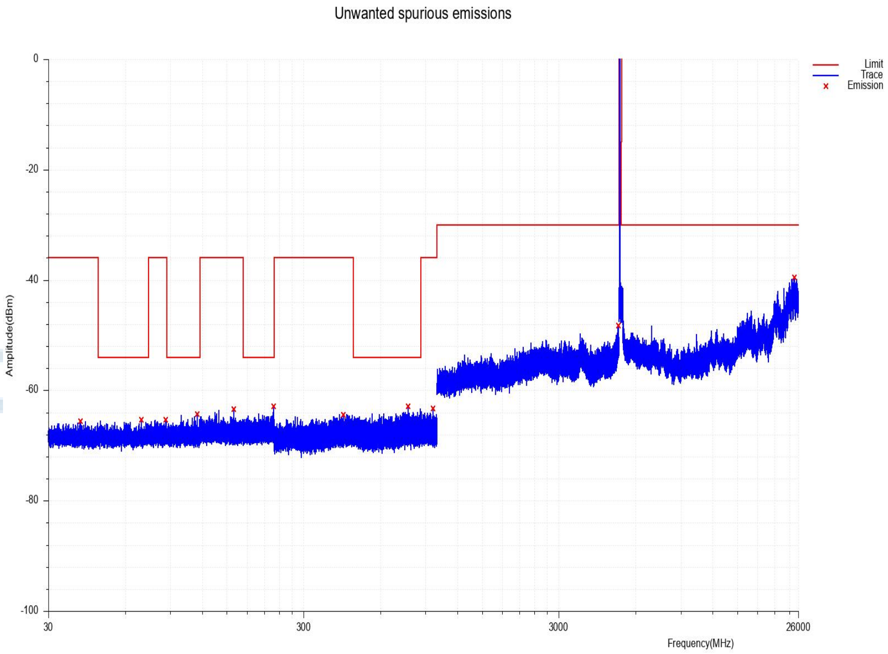
Condition	Antenna	Mode	Frequency (MHz)	Range	Spur Freq(MHz)	Spur Freq Peak(dBm)	Spur Level RMS(dBm)	Limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	30.00~47.00	35.00	-65.85	N/A	-36	Pass
NVNT	ANT1	802.11a	5180.00	47.00~74.00	69.83	-65.98	N/A	-54	Pass
NVNT	ANT1	802.11a	5180.00	74.00~87.50	85.56	-65.42	N/A	-36	Pass
NVNT	ANT1	802.11a	5180.00	87.50~118.00	103.47	-65.44	N/A	-54	Pass
NVNT	ANT1	802.11a	5180.00	118.00~174.00	158.36	-64.68	N/A	-36	Pass
NVNT	ANT1	802.11a	5180.00	174.00~230.00	223.74	-64.23	N/A	-54	Pass
NVNT	ANT1	802.11a	5180.00	230.00~470.00	432.54	-64.17	N/A	-36	Pass
NVNT	ANT1	802.11a	5180.00	470.00~862.00	806.14	-63.05	N/A	-54	Pass
NVNT	ANT1	802.11a	5180.00	862.00~1000.00	906.86	-63.54	N/A	-36	Pass
NVNT	ANT1	802.11a	5180.00	1000.00~5150.00	5099.92	-48.19	N/A	-30	Pass
NVNT	ANT1	802.11a	5180.00	5150.00~5350.00	5184.02	4.20	/	/	/
NVNT	ANT1	802.11a	5180.00	5350.00~26000.00	25094.84	-39.92	N/A	-30	Pass
NVNT	ANT1	802.11a	5200.00	30.00~47.00	39.98	-65.66	N/A	-36	Pass
NVNT	ANT1	802.11a	5200.00	47.00~74.00	69.42	-65.30	N/A	-54	Pass
NVNT	ANT1	802.11a	5200.00	74.00~87.50	86.27	-65.33	N/A	-36	Pass
NVNT	ANT1	802.11a	5200.00	87.50~118.00	115.12	-64.28	N/A	-54	Pass
NVNT	ANT1	802.11a	5200.00	118.00~174.00	160.03	-63.43	N/A	-36	Pass
NVNT	ANT1	802.11a	5200.00	174.00~230.00	228.31	-62.95	N/A	-54	Pass
NVNT	ANT1	802.11a	5200.00	230.00~470.00	430.30	-64.38	N/A	-36	Pass
NVNT	ANT1	802.11a	5200.00	470.00~862.00	771.03	-62.95	N/A	-54	Pass
NVNT	ANT1	802.11a	5200.00	862.00~1000.00	963.85	-63.29	N/A	-36	Pass
NVNT	ANT1	802.11a	5200.00	1000.00~5150.00	5122.89	-48.29	N/A	-30	Pass
NVNT	ANT1	802.11a	5200.00	5150.00~5350.00	5198.57	5.41	/	/	/
NVNT	ANT1	802.11a	5200.00	5350.00~26000.00	25046.66	-39.53	N/A	-30	Pass
NVNT	ANT1	802.11a	5240.00	30.00~47.00	46.52	-65.84	N/A	-36	Pass
NVNT	ANT1	802.11a	5240.00	47.00~74.00	67.02	-65.46	N/A	-54	Pass
NVNT	ANT1	802.11a	5240.00	74.00~87.50	76.76	-65.34	N/A	-36	Pass
NVNT	ANT1	802.11a	5240.00	87.50~118.00	110.91	-65.21	N/A	-54	Pass
NVNT	ANT1	802.11a	5240.00	118.00~174.00	121.07	-64.49	N/A	-36	Pass
NVNT	ANT1	802.11a	5240.00	174.00~230.00	199.98	-64.16	N/A	-54	Pass
NVNT	ANT1	802.11a	5240.00	230.00~470.00	444.47	-63.38	N/A	-36	Pass
NVNT	ANT1	802.11a	5240.00	470.00~862.00	837.93	-63.39	N/A	-54	Pass
NVNT	ANT1	802.11a	5240.00	862.00~1000.00	975.79	-63.96	N/A	-36	Pass
NVNT	ANT1	802.11a	5240.00	1000.00~5150.00	5119.57	-49.92	N/A	-30	Pass
NVNT	ANT1	802.11a	5240.00	5150.00~5350.00	5241.29	5.40	/	/	/
NVNT	ANT1	802.11a	5240.00	5350.00~26000.00	24529.72	-38.76	N/A	-30	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	30.00~47.00	32.86	-65.36	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	47.00~74.00	59.24	-64.84	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	74.00~87.50	79.94	-65.91	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	87.50~118.00	101.62	-65.20	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	118.00~174.00	131.45	-64.47	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	174.00~230.00	227.19	-64.92	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	230.00~470.00	437.89	-64.66	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	470.00~862.00	846.91	-64.28	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	862.00~1000.00	884.20	-64.12	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	1000.00~5150.00	5149.17	-48.95	N/A	-30	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	5150.00~5350.00	5185.07	3.65	/	/	/

NVNT	ANT1	802.11n(HT20)	5180.00	5350.00~26000.00	24966.81	-39.49	N/A	-30	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	30.00~47.00	46.61	-65.36	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	47.00~74.00	48.03	-65.08	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	74.00~87.50	79.24	-64.89	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	87.50~118.00	102.52	-65.16	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	118.00~174.00	127.19	-63.75	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	174.00~230.00	223.83	-64.29	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	230.00~470.00	427.40	-63.64	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	470.00~862.00	828.33	-63.69	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	862.00~1000.00	870.63	-62.95	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	1000.00~5150.00	5145.57	-48.33	N/A	-30	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	5150.00~5350.00	5195.68	5.03	/	/	/
NVNT	ANT1	802.11n(HT20)	5200.00	5350.00~26000.00	25145.78	-38.78	N/A	-30	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	30.00~47.00	33.73	-65.31	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	47.00~74.00	58.19	-65.97	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	74.00~87.50	76.76	-65.92	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	87.50~118.00	94.72	-65.63	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	118.00~174.00	172.27	-64.79	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	174.00~230.00	224.00	-64.19	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	230.00~470.00	380.02	-64.22	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	470.00~862.00	698.46	-63.96	N/A	-54	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	862.00~1000.00	936.88	-64.31	N/A	-36	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	1000.00~5150.00	5145.85	-49.37	N/A	-30	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	5150.00~5350.00	5244.92	4.51	/	/	/
NVNT	ANT1	802.11n(HT20)	5240.00	5350.00~26000.00	23970.10	-39.45	N/A	-30	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	30.00~47.00	42.88	-65.46	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	47.00~74.00	59.82	-65.53	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	74.00~87.50	83.81	-65.26	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	87.50~118.00	92.63	-65.48	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	118.00~174.00	149.96	-64.73	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	174.00~230.00	214.50	-64.60	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	230.00~470.00	464.14	-64.03	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	470.00~862.00	729.11	-64.00	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	862.00~1000.00	889.92	-63.95	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	1000.00~5150.00	5148.34	-45.45	N/A	-30	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	5150.00~5350.00	5196.93	1.36	/	/	/
NVNT	ANT1	802.11n(HT40)	5190.00	5350.00~26000.00	25008.11	-39.19	N/A	-30	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	30.00~47.00	38.49	-66.05	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	47.00~74.00	51.96	-64.91	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	74.00~87.50	83.63	-65.51	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	87.50~118.00	99.54	-65.12	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	118.00~174.00	166.26	-63.57	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	174.00~230.00	216.64	-64.33	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	230.00~470.00	375.14	-64.06	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	470.00~862.00	763.80	-63.49	N/A	-54	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	862.00~1000.00	905.78	-63.48	N/A	-36	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	1000.00~5150.00	5096.33	-49.78	N/A	-30	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	5150.00~5350.00	5237.22	1.87	/	/	/
NVNT	ANT1	802.11n(HT40)	5230.00	5350.00~26000.00	25081.08	-39.66	N/A	-30	Pass

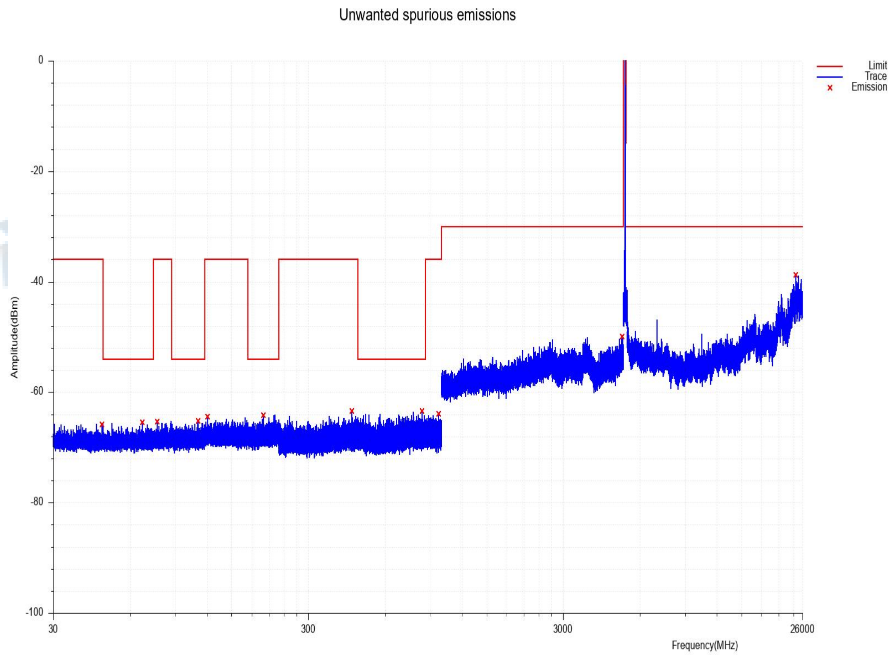
NVNT_ANT1_802_11a_5180



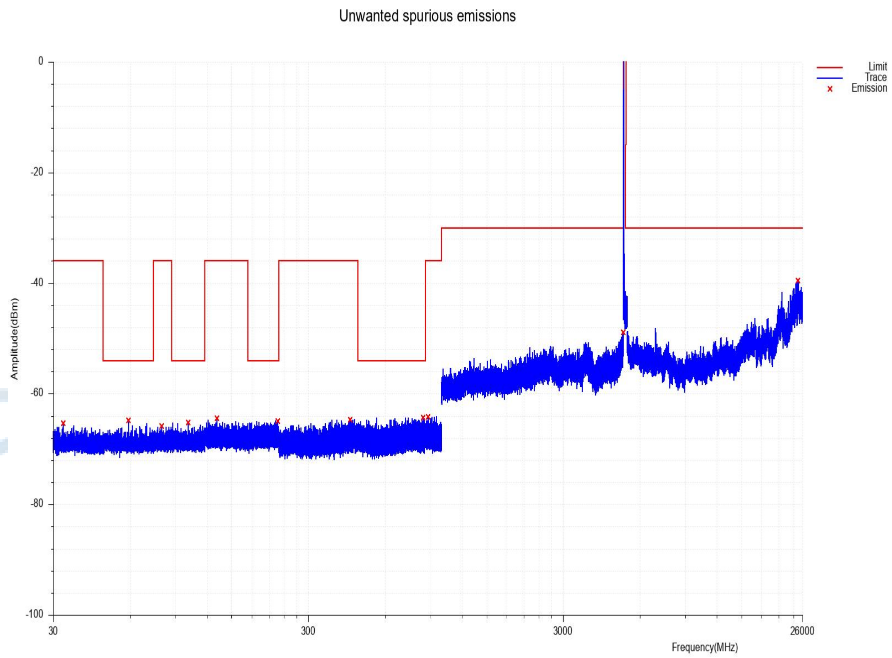
NVNT_ANT1_802_11a_5200



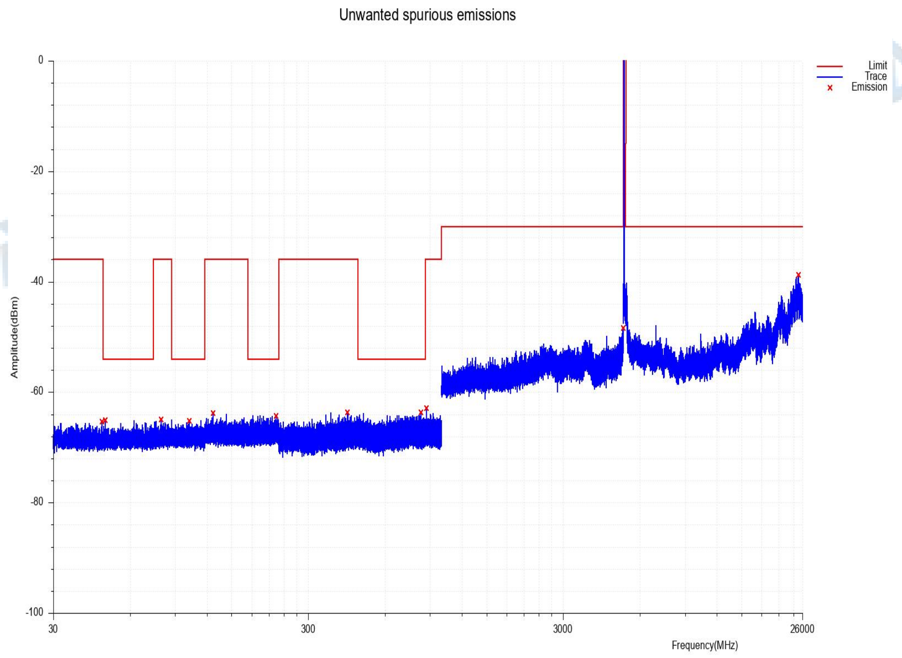
NVNT_ANT1_802_11a_5240



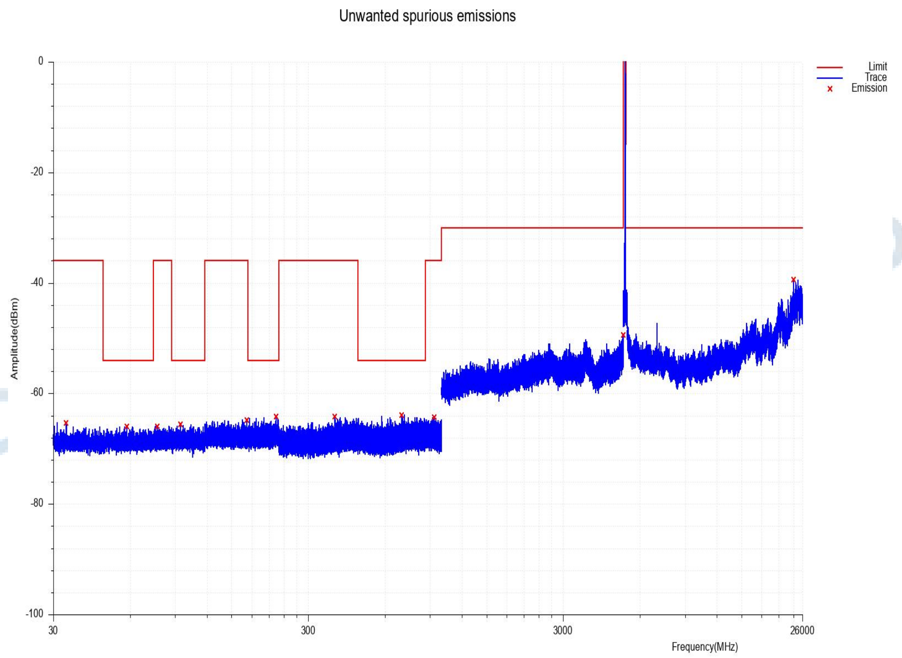
NVNT_ANT1_802_11n(HT20)_5180



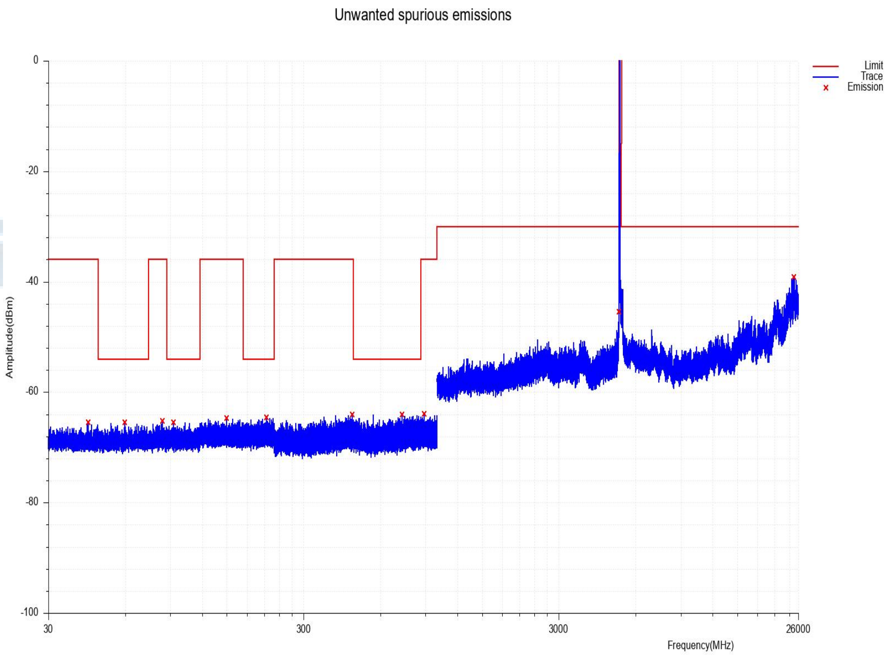
NVNT_ANT1_802_11n(HT20)_5200



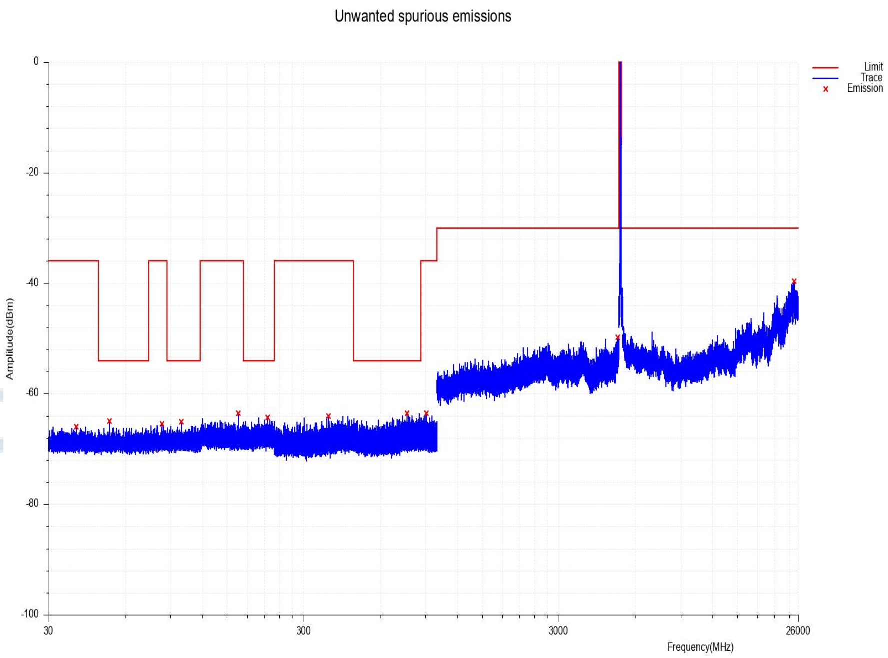
NVNT_ANT1_802_11n(HT20)_5240



NVNT_ANT1_802_11n(HT40)_5190



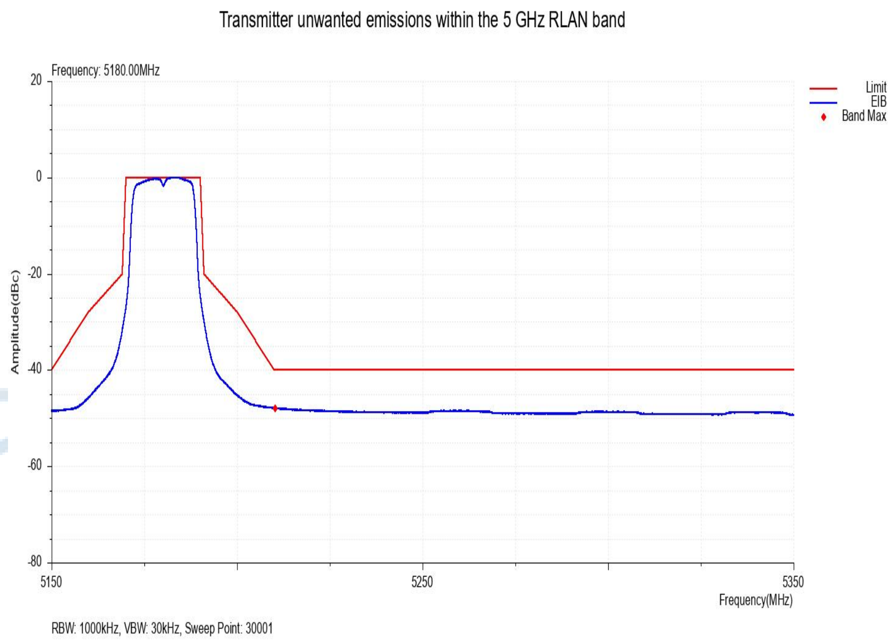
NVNT_ANT1_802_11n(HT40)_5230



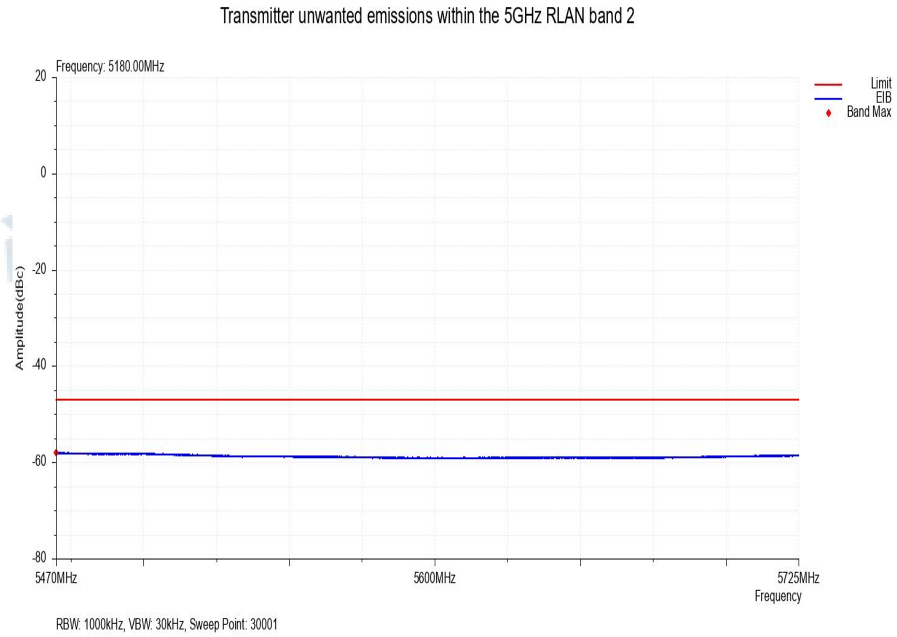
6. Transmitter emissions within bands

Condition	Antenna	Mode	Frequency (MHz)	Sub Band	Worst EIB Frequency (MHz)	Level (dBc)	Limit (dBc)	Result
NVNT	ANT1	802.11a	5180.00	Band1	5210.20	-47.90	-40.00	Pass
NVNT	ANT1	802.11a	5180.00	Band2	5470.00	-58.01	-47.00	Pass
NVNT	ANT1	802.11a	5200.00	Band1	5230.24	-48.47	-40.00	Pass
NVNT	ANT1	802.11a	5200.00	Band2	5470.00	-58.11	-47.00	Pass
NVNT	ANT1	802.11a	5240.00	Band1	5270.32	-48.29	-40.00	Pass
NVNT	ANT1	802.11a	5240.00	Band2	5480.20	-56.53	-47.00	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	Band1	5210.08	-47.05	-40.00	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	Band2	5470.92	-57.16	-47.00	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	Band1	5230.12	-48.13	-40.00	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	Band2	5470.00	-57.82	-47.00	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	Band1	5270.32	-47.47	-40.00	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	Band2	5480.10	-55.81	-47.00	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	Band1	5252.64	-45.20	-40.00	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	Band2	5724.34	-55.28	-47.00	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	Band1	5310.08	-44.91	-40.00	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	Band2	5724.69	-55.02	-47.00	Pass

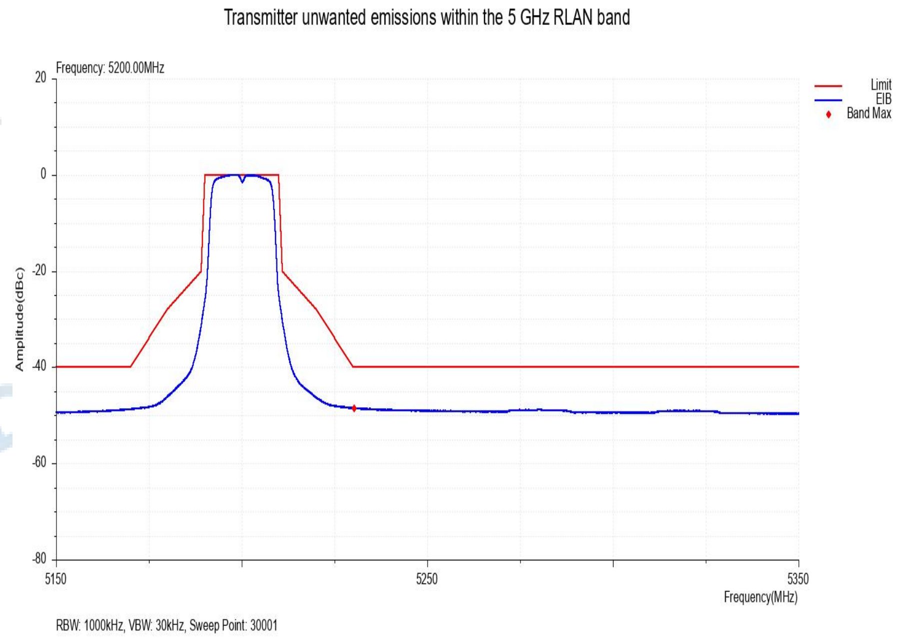
ANT1_802_11a_band_1_5180



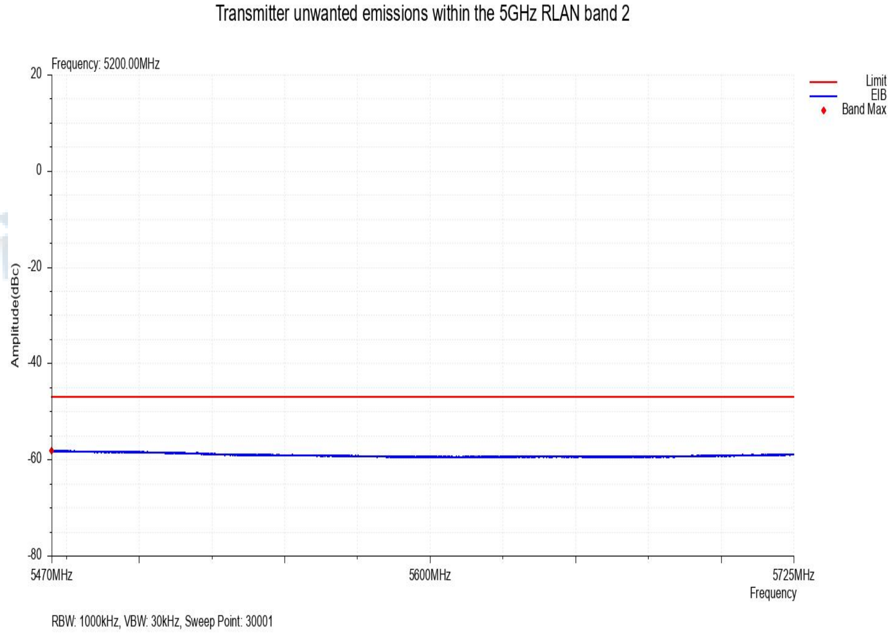
ANT1_802_11a_band_2_5180_00



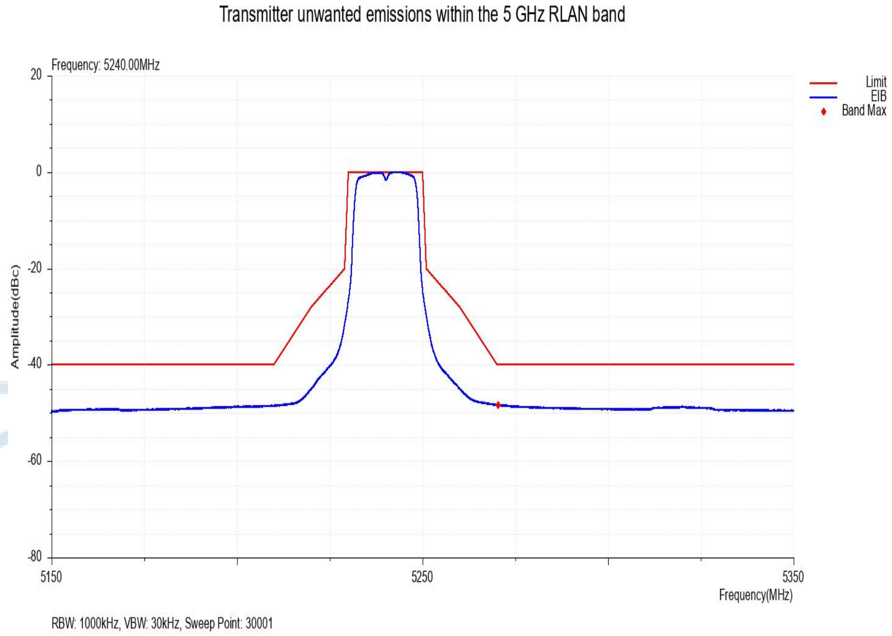
ANT1_802_11a_band_1_5200



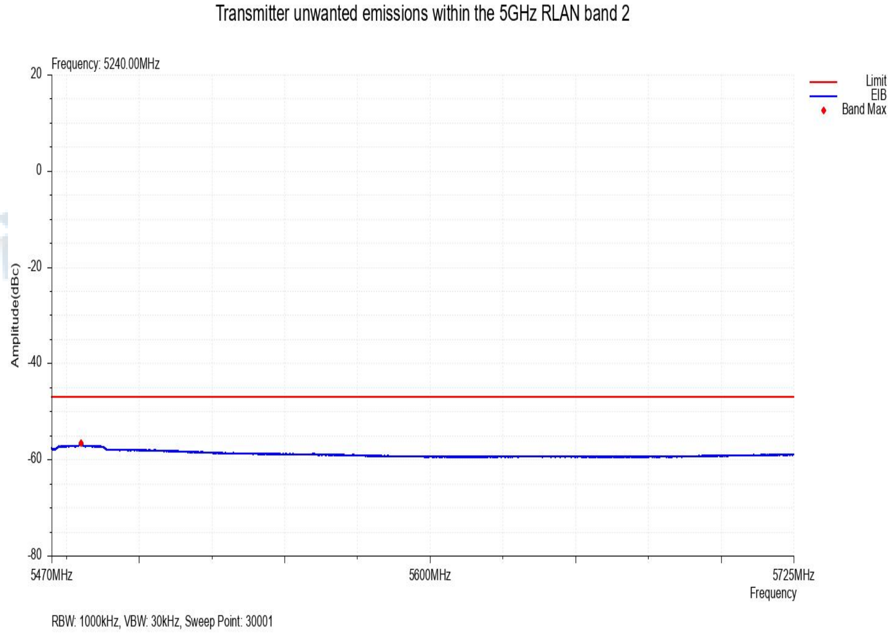
ANT1_802_11a_band_2_5200_00



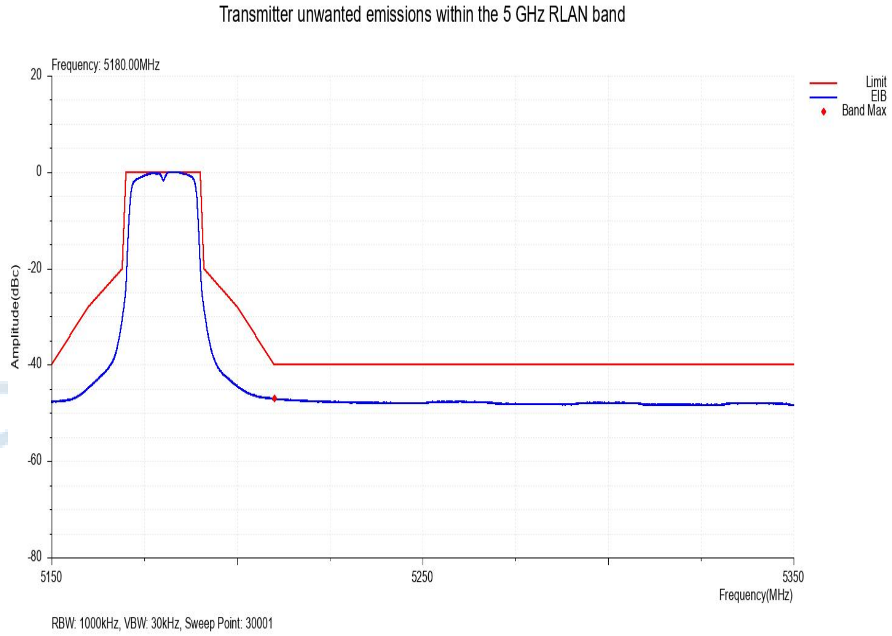
ANT1_802_11a_band_1_5240



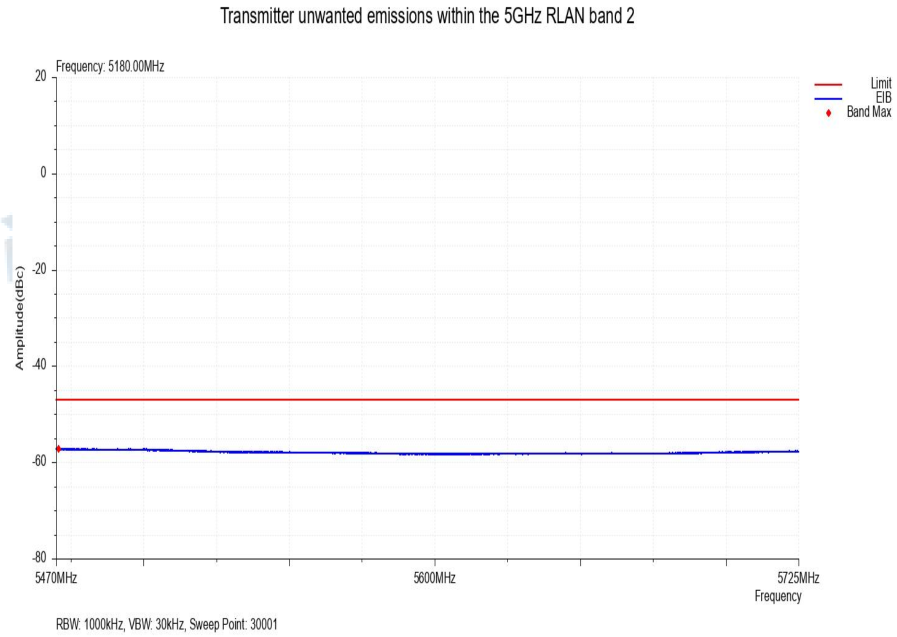
ANT1_802_11a_band_2_5240_00



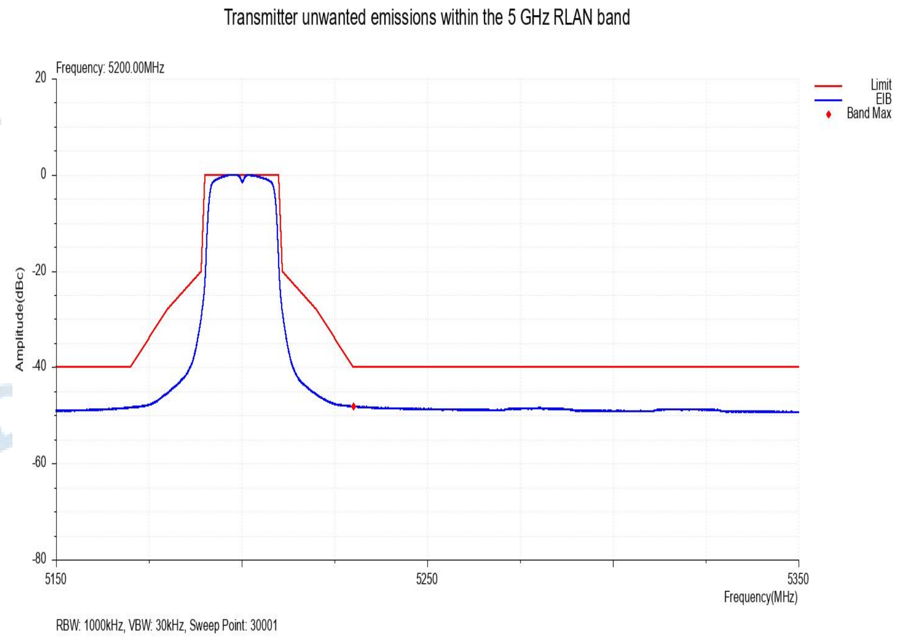
ANT1_802_11n(HT20)_band_1_5180



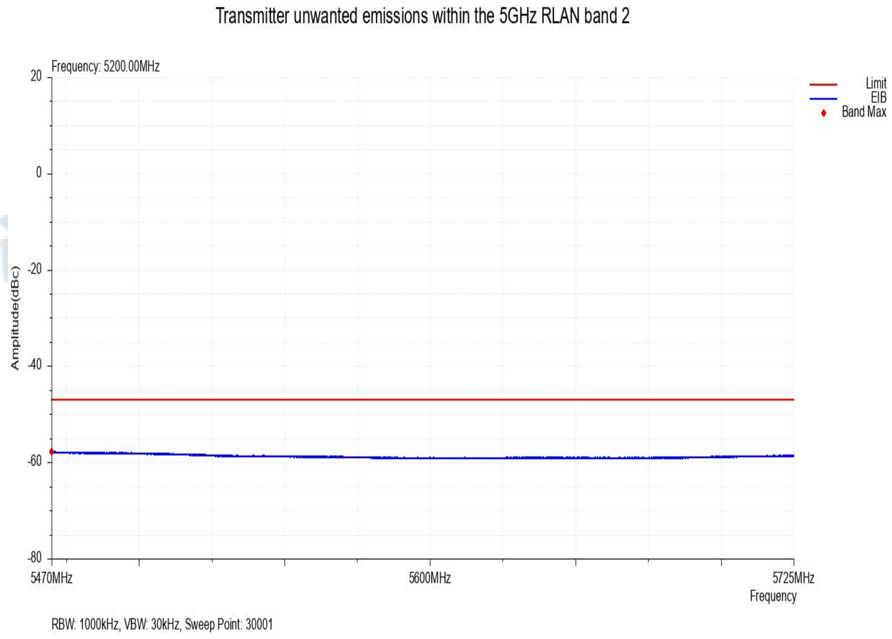
ANT1_802_11n(HT20)_band_2_5180_00



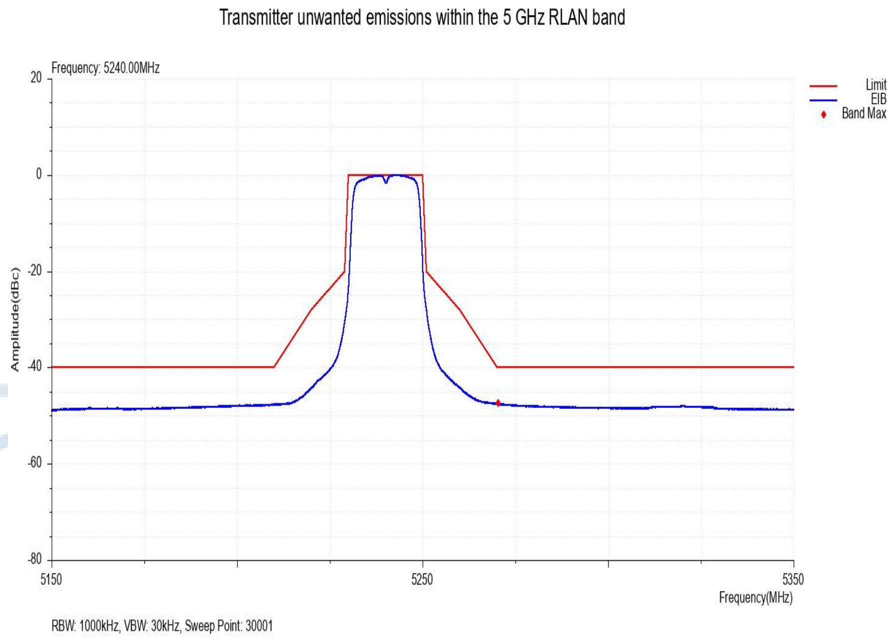
ANT1_802_11n(HT20)_band_1_5200



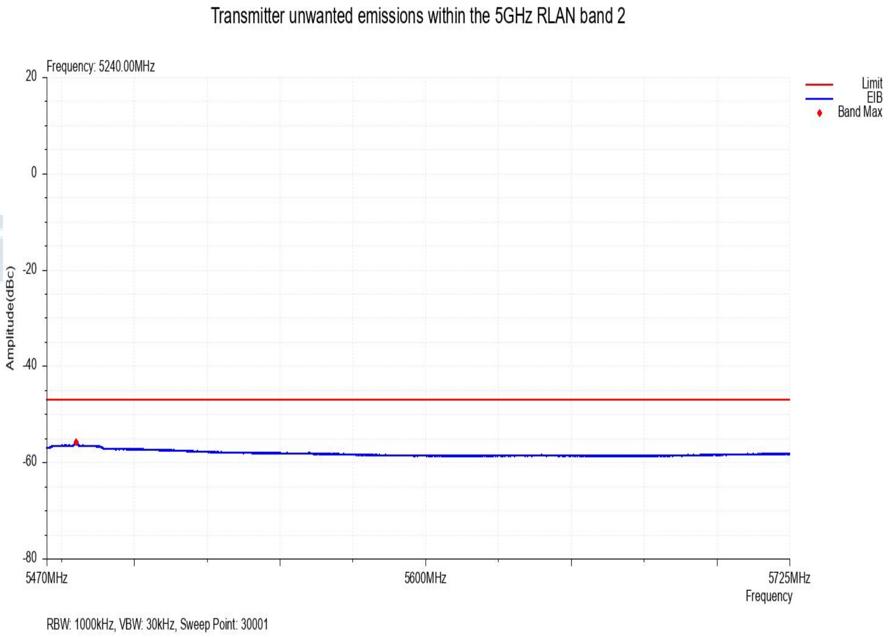
ANT1_802_11n(HT20)_band_2_5200_00



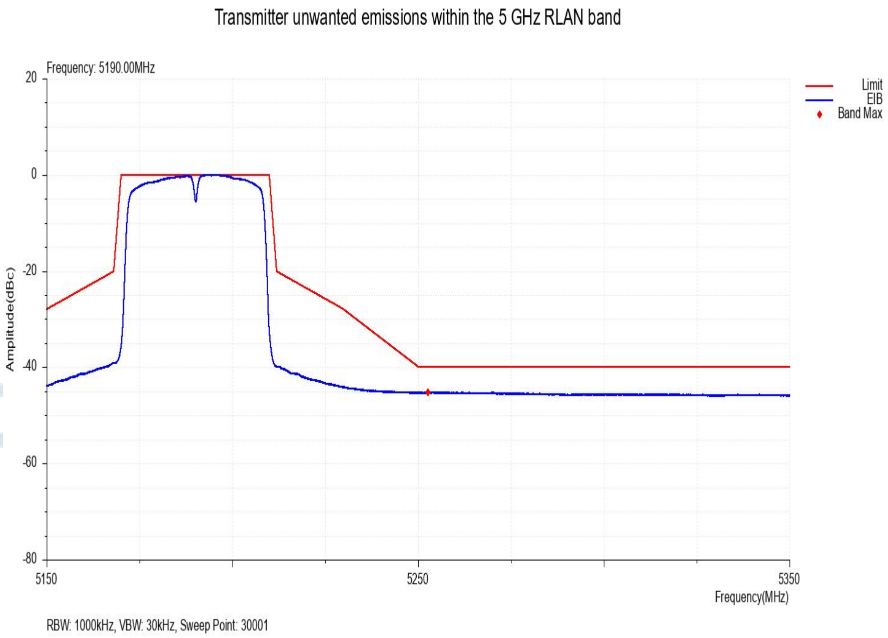
ANT1_802_11n(HT20)_band_1_5240



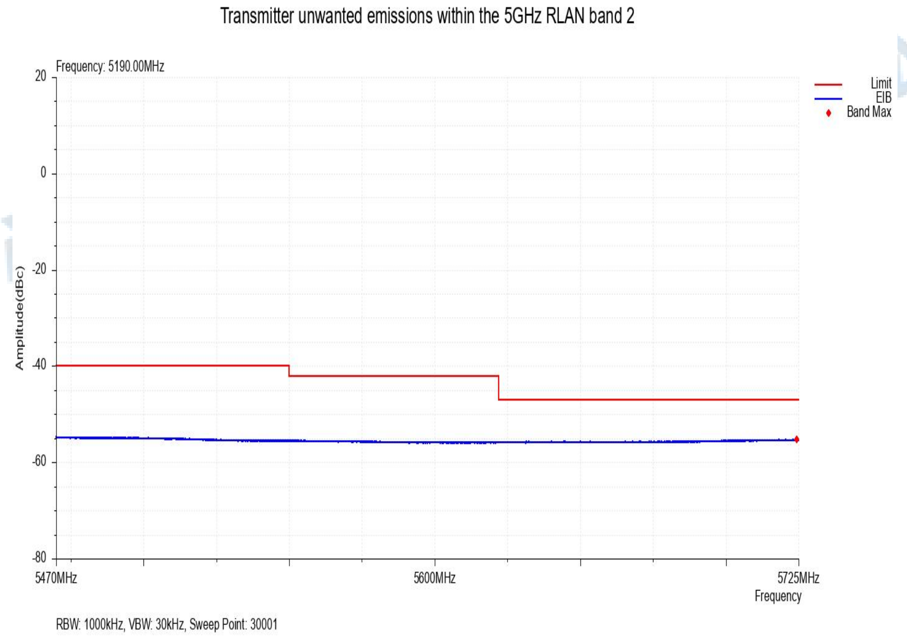
ANT1_802_11n(HT20)_band_2_5240_00



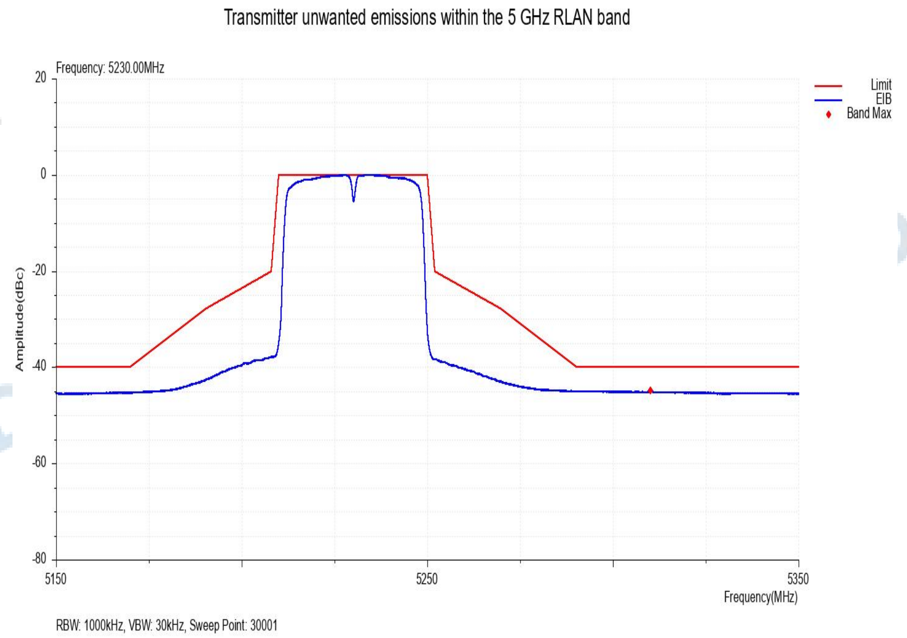
ANT1_802_11n(HT40)_band_1_5190



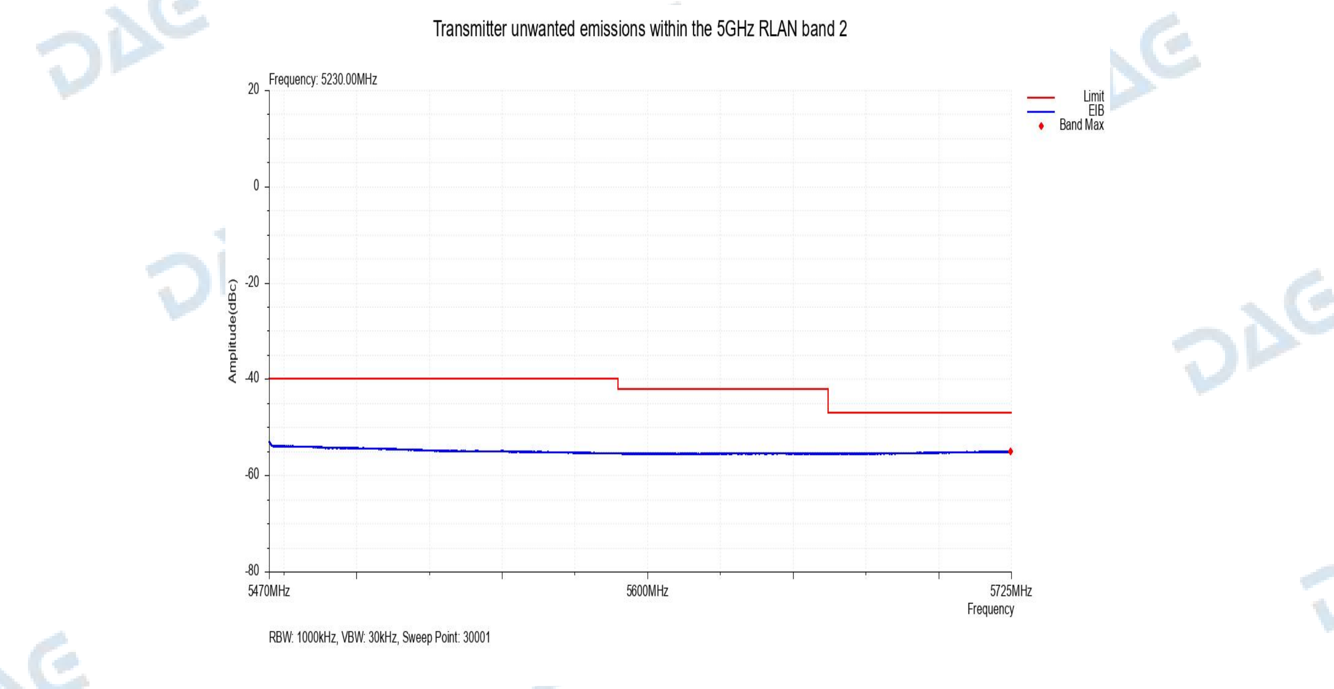
ANT1_802_11n(HT40)_band_2_5190_00



ANT1_802_11n(HT40)_band_1_5230



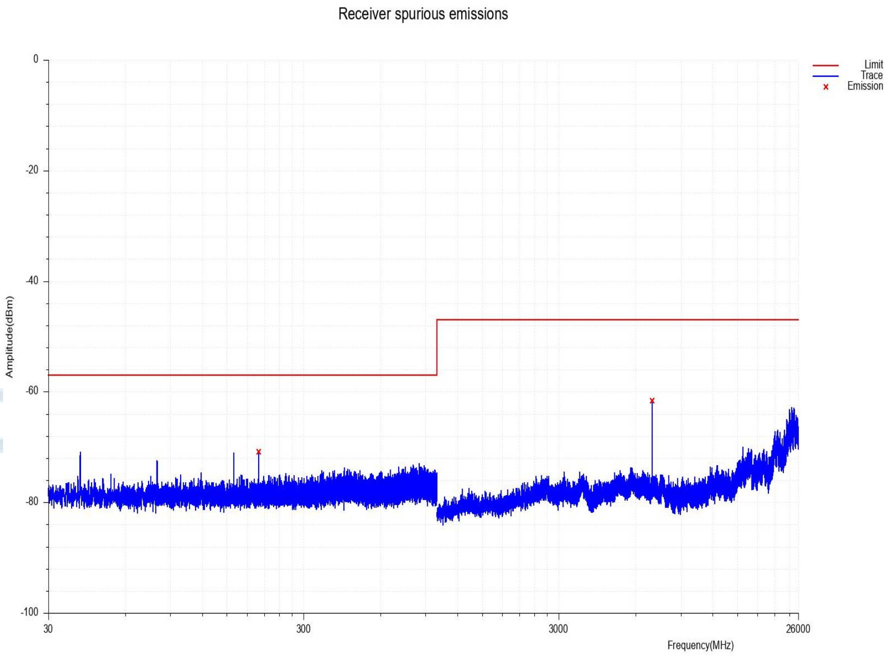
ANT1_802_11n(HT40)_band_2_5230_00


Transmitter unwanted emissions within the 5GHz RLAN band 2
Frequency: 5230.00MHz
Limit
EIB
Band Max
Amplitude(dBc)
20
0
-20
-40
-60
-80
5470MHz
5600MHz
5725MHz
Frequency
RBW: 1000kHz, VBW: 30kHz, Sweep Point: 30001

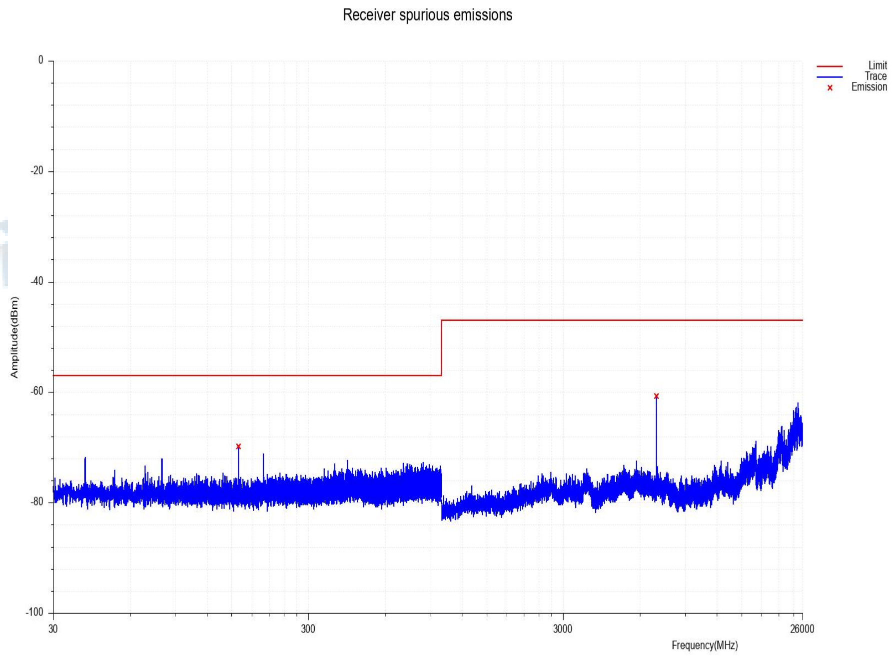
7. Receiver spurious emissions

Condition	Antenna	Mode	Frequency (MHz)	Range	Spur Freq(MHz)	Spur Freq Peak(dBm)	Spur Level RMS(dBm)	Limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	30.00~1000.00	200.01	-70.91	N/A	-57	Pass
NVNT	ANT1	802.11a	5180.00	1000.00~26000.00	6973.33	-61.59	N/A	-47	Pass
NVNT	ANT1	802.11a	5200.00	30.00~1000.00	160.04	-69.84	N/A	-57	Pass
NVNT	ANT1	802.11a	5200.00	1000.00~26000.00	6973.33	-60.73	N/A	-47	Pass
NVNT	ANT1	802.11a	5240.00	30.00~1000.00	160.01	-69.42	N/A	-57	Pass
NVNT	ANT1	802.11a	5240.00	1000.00~26000.00	6973.33	-61.20	N/A	-47	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	30.00~1000.00	160.01	-71.00	N/A	-57	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	1000.00~26000.00	6973.33	-61.04	N/A	-47	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	30.00~1000.00	160.01	-70.03	N/A	-57	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	1000.00~26000.00	6973.33	-61.05	N/A	-47	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	30.00~1000.00	200.04	-69.83	N/A	-57	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	1000.00~26000.00	6973.33	-60.82	N/A	-47	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	30.00~1000.00	160.01	-70.67	N/A	-57	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	1000.00~26000.00	6973.33	-60.83	N/A	-47	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	30.00~1000.00	160.01	-70.37	N/A	-57	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	1000.00~26000.00	6973.33	-61.34	N/A	-47	Pass

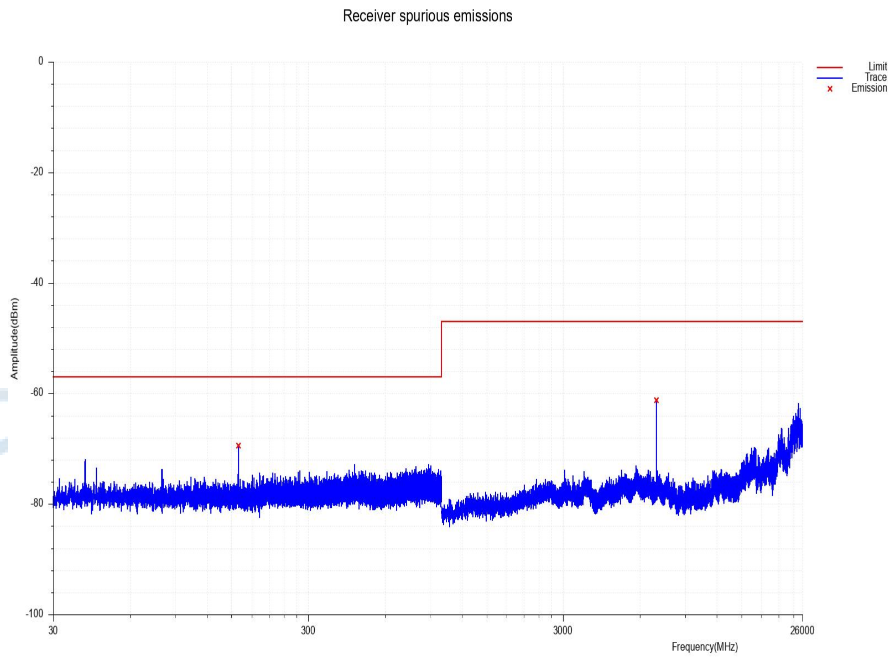
Receiver_spurious_emissions_NVNT_ANT1_802_11a_5180



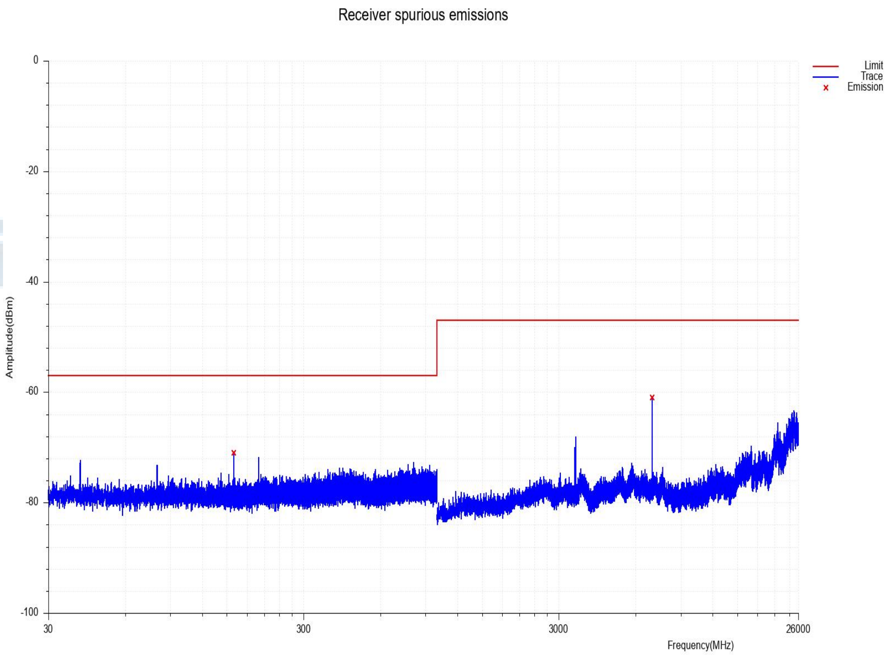
Receiver_spurious_emissions_NVNT_ANT1_802_11a_5200



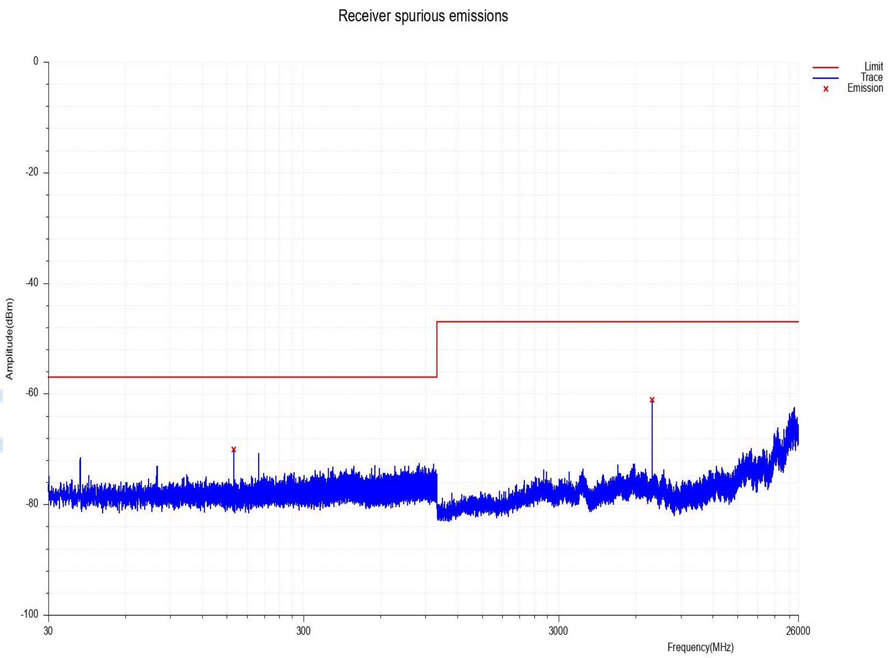
Receiver_spurious_emissions_NVNT_ANT1_802_11a_5240



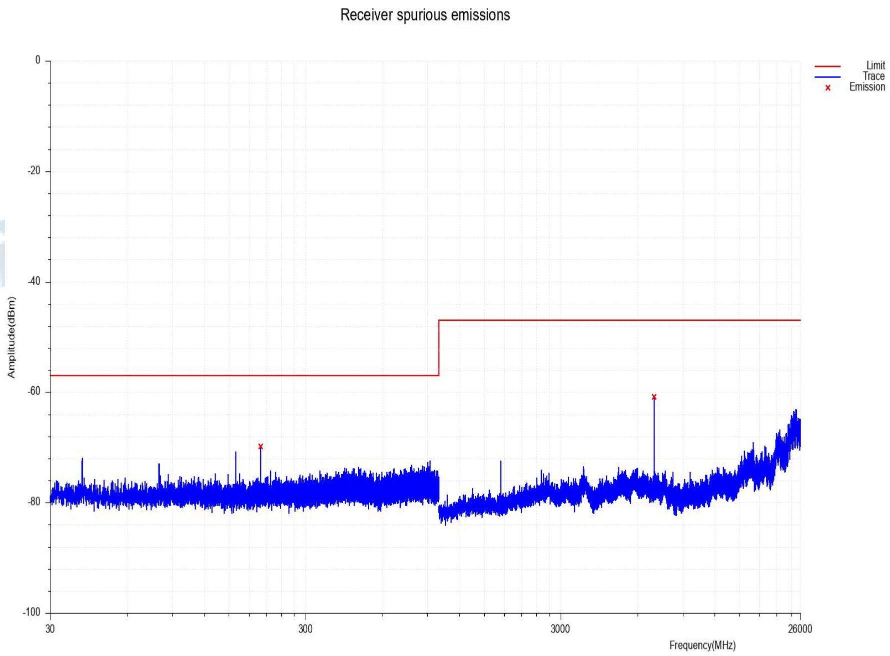
Receiver_spurious_emissions_NVNT_ANT1_802_11n(HT20)_5180



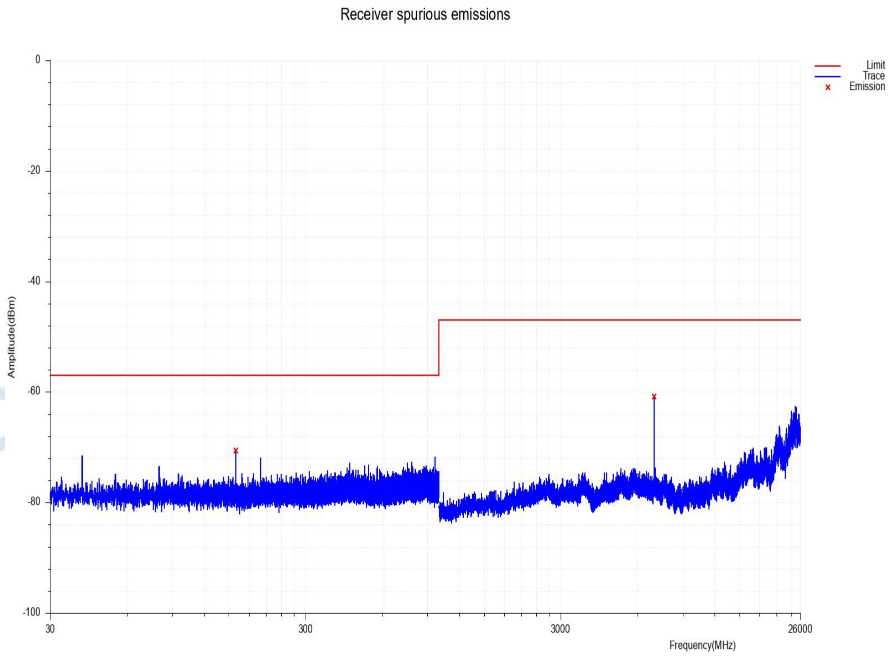
Receiver_spurious_emissions_NVNT_ANT1_802_11n(HT20)_5200



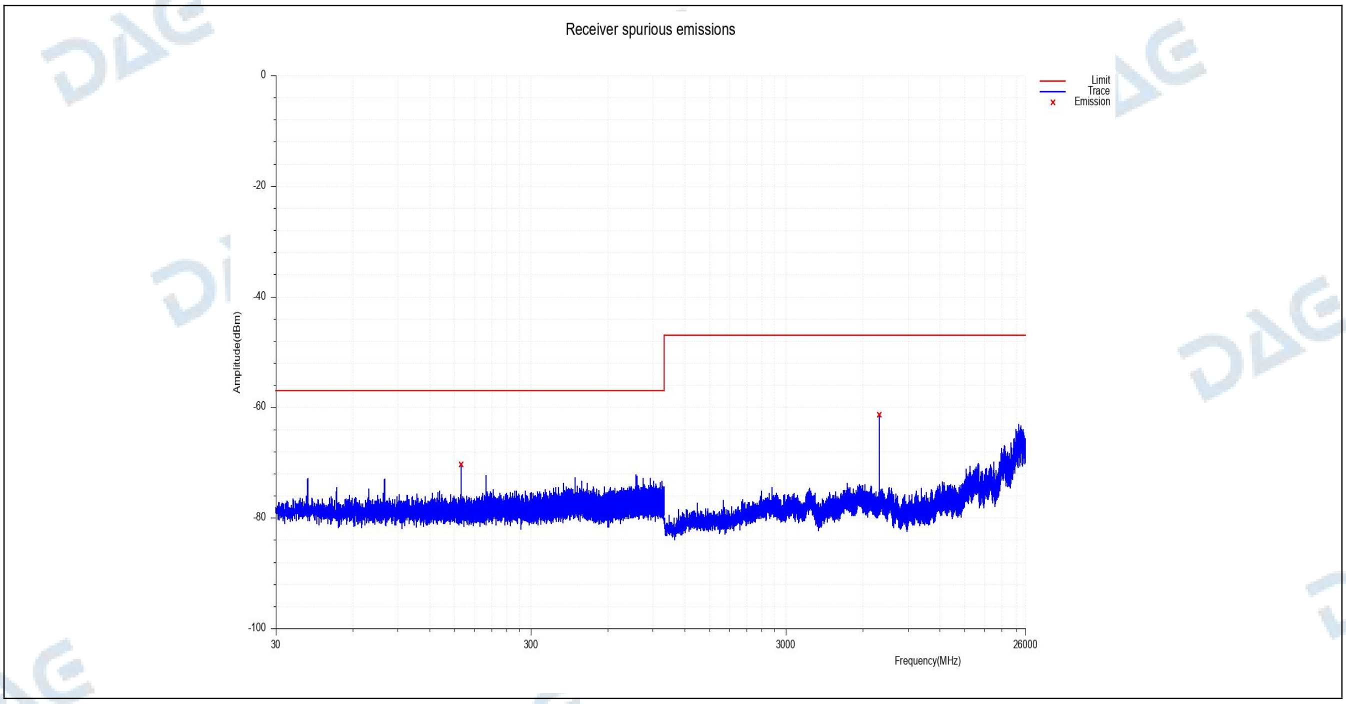
Receiver_spurious_emissions_NVNT_ANT1_802_11n(HT20)_5240



Receiver_spurious_emissions_NVNT_ANT1_802_11n(HT40)_5190



Receiver_spurious_emissions_NVNT_ANT1_802_11n(HT40)_5230


Receiver spurious emissions
Limit
Trace
Emission
Amplitude(dBm)
0
-20
-40
-60
-80
-100
30
300
3000
26000
Frequency(MHz)

8. Adaptivity

Condition	Antenna	Modulation	Frequency	AWGN (dBm/MHz)	CW (dBm)	Short Control Time(ms)	Short Control Ratio (%)	Limit (%)	Result
NVNT	ANT1	802.11a	5180.00	-50	-35	4.27	8.53	<=10	Pass
NVNT	ANT1	802.11a	5200.00	-50	-35	4.49	8.97	<=10	Pass
NVNT	ANT1	802.11a	5240.00	-50	-35	4.72	9.44	<=10	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	-50	-35	4.41	8.82	<=10	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	-50	-35	3.65	7.29	<=10	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	-50	-35	4.18	8.37	<=10	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	-50	-35	4.57	9.14	<=10	Pass
NVNT	ANT1	802.11ac(VHT20)	5200.00	-50	-35	3.50	6.99	<=10	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	-50	-35	3.71	7.41	<=10	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	-50	-35	3.00	6.01	<=10	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	-50	-35	4.64	9.29	<=10	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	-50	-35	4.52	9.04	<=10	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	-50	-35	3.80	7.60	<=10	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	-50	-35	4.52	9.04	<=10	Pass

9. Adaptivity_COT_Channel_Occupancy_Time

Condition	Antenna	Modulation	Frequency	Max COT (ms)	Limit COT (ms)	Min Idle Time(ms)	Limit Idle Time (ms)	Result
NVNT	ANT1	802.11a	5180.00	0.61	<=13	1.53	>0.018	Pass
NVNT	ANT1	802.11a	5200.00	0.63	<=13	1.03	>0.018	Pass
NVNT	ANT1	802.11a	5240.00	1.77	<=13	1.58	>0.018	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	1.60	<=13	2.98	>0.018	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	0.08	<=13	2.18	>0.018	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	0.25	<=13	2.08	>0.018	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	0.91	<=13	2.80	>0.018	Pass
NVNT	ANT1	802.11ac(VHT20)	5200.00	1.13	<=13	1.46	>0.018	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	0.63	<=13	2.46	>0.018	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	1.89	<=13	2.35	>0.018	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	1.38	<=13	2.06	>0.018	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	0.34	<=13	1.66	>0.018	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	1.12	<=13	1.65	>0.018	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	1.65	<=13	1.46	>0.018	Pass

10. Receiver Blocking

Condition	Antenna	Modulation	Frequency (MHz)	Wanted Power (dBm)	Blocking Frequency (MHz)	Blocking Power (dBm)	PER(%)	Limit(%)	Result
NVNT	ANT1	802.11a	5180.00	-58	4900	-34	0.10	≤10	Pass
NVNT	ANT1	802.11a	5180.00	-58	5000	-34	1.57	≤10	Pass
NVNT	ANT1	802.11a	5180.00	-58	5975	-34	1.34	≤10	Pass
NVNT	ANT1	802.11a	5240.00	-58	4900	-34	0.03	≤10	Pass
NVNT	ANT1	802.11a	5240.00	-58	5000	-34	1.56	≤10	Pass
NVNT	ANT1	802.11a	5240.00	-58	5975	-34	1.30	≤10	Pass

********************** **End of Report** **********************